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WatchMaster® IP Elite 3000

Fixed Mount, Fixed Focus Thermal IP and Analog Camera User Manual

DRS TECHNOLOGIES
A Finmeccanica Company

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H.264 encoder	http://www.mpegla.com/main/programs/AVC/Pages/AgreementExpress.aspx
Onvif	www.onvif.org
H.264 decoder (Video LAN SW) (VLC provides Source-Freeware)	http://www.gnu.org/licenses/gpl.h® l
Live 555 server	http://www.live555.com/liveMedia/#license
Linux kernel	http://www.kernel.org
Lighttpd	http://www.lighttpd.net/
dhcpcd	http://www.phystech.com/download/dhcpcd.h® l
ntpclient	http://doolittle.icarus.com/ntpclient/
zeroconfig	http://avahi.org/wiki/AboutAvahi
esmtp	http://sourceforge.net/projects/esmtp/

REGULATORY AND SAFETY

FCC

This equipment has been tested and found to comply with the limits of FCC Class A Part 15 Subpart B. This equipment also complies with Canadian CES-003.

CE

This equipment complies with CE standard as below.

For Europe (CE):

IEC 60065:2001 + Amd 1:2005 / EN 60065:2002

UL

This equipment is approved by UL and is compliant to below specifications.

For North America (UL):
UL 60065, 7th Edition, 2007-12-11
CAN/CSA-C22.2 No. 60065-03, 1st Edition, 2006-04 + A1:2006

RoHS

This equipment complies with the European ROHS directive, 2002/95/EC.

WEEE

This equipment must be disposed of as electronic waste. Contact your nearest DRS Representative for instructions on how to return the product for proper disposal.

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ACRONYMS AND ABBREVIATIONS

Abbreviation	Description
VOx	Vanadium Oxide
IP	Internet Protocol
ONVIF	Open Network Video Interface Forum
NEDT	Noise Equivalent Delta Temperature
DHCP	Dynamic Host Control Protocol
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
FTP	File Transfer Protocol
NTP	Network Time Protocol
HTTP	Hypertext Transport Protocol
HTTPS	Hypertext Transport Protocol Secure
802.1X	Network Access Control Port based standard
H264	Video Compression Standard
JPEG	Joint Photographic Experts Group
MJPEG	Motion Joint Photographic Experts Group
VLC	VideoLAN Client
AGC	Automatic Gain Control
ROI	Region of Interest
RTP	Realtime Transport Protocol
RTSP	Realtime Streaming Protocol
UPnP	Universal Plug and Play
EULA	End User Licensing Agreement

REFERENCE DOCUMENTATION

The following documents form part of this user manual. In the event of a conflict between documents referenced herein and the contents of this user manual, the contents of this user manual shall be considered a superseding requirement.

DRS WatchMaster® IP Elite/IP Elite 3000 Quick Start Guide

DRS WinXP UPnP Procedure

DRSWatchMaster® IP Family Interface Control document (ICD)

http://www.drsinfrared.com

DRS WatchMaster® IP Elite Training Videos --Please note these videos are applicable to WatchMaster® IP Elite only. For IP Elite 3000 training, please refer to the above Quick Start Guide.

DRS WatchMaster® IP Elite Setup and Assembly

http://youtu.be/tFmwIowRWG8

Software Configuration Module 1 - DRS WatchMaster® IP Elite

http://youtu.be/Sx-TfdAD4D4

Software Configuration Module 2 - DRS WatchMaster® IP Elite

http://youtu.be/uXLsb5Fi99U

Software Configuration Module 3 - DRS WatchMaster® IP Elite

http://youtu.be/scxjOcVi4Ck

VLC Media Player Download

http://www.videolan.org/vlc/

SAFETY INSTRUCTIONS

NOTIFICATIONS: CAUTION, WARNING AND NOTE

Throughout this manual, notifications are used to alert the user's to potential risks and to minimize the potential for personal injury and or damage to the product. When a notification is present, it is important that the user review and understand all statements related to the notification before proceeding. If questions arise, please contact your authorized dealer or DRS Technologies.

Notifications are preceded by a symbol and followed by highlighted text. Three types of notifications are used throughout this manual and are defined below:

CAUTION

A caution is a procedure, practice, or condition that, if not strictly followed, may result in personal injury or damage to the equipment that may impede product performance.

WARNING

A warning is intended to alert the user to the presence of potentially harmful circumstances and provide precautionary guidance for mitigating risk of personal injury and or damage to the product.

NOTE

A note is a statement that clarifies or is used to emphasize important information.

WARNING

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Install in accordance with the manufacturer's instructions.
6. Installation of the equipment must comply with local and national electrical codes.
7. This product must be connected to a Power Over Ethernet IEEE 802.af compliant power source or a UL Listed "Class 2" power supply rated 12-24 V DC or 24 V AC minimum 13 W or 0.54 A.
8. Operating the camera at voltage levels outside the specified range may result in permanent damage to the unit and void the product warranty.
9. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

10. Clean the camera lens only with lens cleaning paper.
11. Failure to follow the proper procedure may cause permanent damage to the camera and void the product warranty.

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1 INTRODUCTION

1.1 DOCUMENT OVERVIEW

This document, DRS WatchMaster® IP Elite 3000 Fixed Mount, Fixed Focus Thermal IP and Analog Camera User Manual, provides details about the IP Camera features, installation, access, configuration, application, interoperability, troubleshooting, warranty and support.

This document also applies to the DRS WatchMaster® IP Elite Fixed Mount, Fixed Focus Thermal IP Camera.

2 PRODUCT OVERVIEW

2.1 IP CAMERA OVERVIEW

This manual applies to the following products:

DRS WatchMaster® IP Elite 3000 30 Hz

DRS WatchMaster® IP Elite 3000 9 Hz

DRS WatchMaster® IP Elite 30 Hz

DRS WatchMaster® IP Elite 9 Hz

This chapter provides an overview of the DRS WatchMaster® IP Elite 3000 Fixed Mount, Fixed Focus thermal IP and Analog Camera. The DRS WatchMaster® IP Elite 3000 offers a feature-rich thermal camera solution for video surveillance systems. The DRS WatchMaster® IP Elite 3000 camera is available in 2 frame rates (versions), 30Hz and 9Hz. The WatchMaster® IP Elite 3000 employs DRS's proven uncooled 320 x 240, 17 µm Vox thermal imaging technology. Unlike many conventional and low light video surveillance cameras, the WatchMaster® IP Elite 3000 does not require any ambient light or illumination. It detects infrared (heat) waves in the 8-12 µm wavelength in the Electromagnetic spectrum to provide users with superior thermal images in challenging environments, including complete darkness, over water and in dark corners, where threats are difficult to detect due to lighting constraints and weather conditions.

The camera system is an Internet Protocol (IP) networked solution, conforming to the Open Network Video Interface Forum (ONVIF™) standard and is operational in a networked environment through a central office, remote video management system or through the DRS provided web interface utility.

With an industry leading low power consumption of less than 12.95 watts, the WatchMaster® IP Elite is IEEE802.3af compliant, supporting video, camera control and power over a single tamper resistant cable connection. As a result, the camera can be configured and installed easily into any existing security infrastructure.

Measuring approximately 2025 cm^3 and weighing less than 1500 grams, the WatchMaster® IP Elite 3000 is compact and lightweight. It is sealed to an IP66 outdoor rating, which makes it ideal for outdoor security of critical infrastructure such as airports, utility companies, and nuclear power plants. The camera is available with a choice of three fully sealed and hard carbon coated athermalized fixed focus lenses, which provide a horizontal field of view of 40°, 16° or 9°, and are all capable of 4X digital zoom.

The Thermal IP camera includes the following key features:

- Thermal Imaging – Provides superior thermal imaging capabilities in complete darkness and challenging environments 24 hours a day 7 days a week using patented DRS sensor technology.
- Superior image quality with Local Area Processing (LAP) feature.
- Optimized Lens – The lens material and optical design is optimized for thermal imaging and range performance.
- Outdoor ready – Suitable for outdoor deployment out-of-the box with built-in heater anti-ice and anti-fog, and IP66 ready.

- Local Storage – Comes with built-in memory for storage of video
- Power options – The IP camera can be powered with 12/24 volts DC or 24 volts AC, which is provided through an optional external power adapter, or through PoE (802.3af), which is provided through a supported switch.
- Communications Interface – 10/100 Ethernet and Power Over Ethernet (POE).
- DHCP support – The IP camera can automatically obtain its IP address in a network in which DHCP is enabled.
- Multiple protocol support – Supports DHCP, FTP, HTTP, HTTPS, NTP, SMTP, RTP, RTSP, 802.1X, TCP/IP and UDP/IP.
- H.264 and MJPEG compression –The camera can generate multiple H.264 and MJPEG streams simultaneously, individually configurable with streams up to 30 frames per second(fps) or fixed at 9fps for export simplification.
- Multicast and user definable ports – Supports multicast IP address and user definable ports for both H264 and MJPEG streams.
- Web-based management – Administration and management of the IP camera can be performed through the DRS web-based configuration menus.
- Motion detection – The IP camera can detect motion based on region of interest definitions and can generate events/alerts if motion is detected.
- Network Time Protocol (NTP) – Allows the IP camera to synchronize its internal clock with a local or Internet time server.
- Electronic Pan/Tilt and Zoom – The IP camera supports electronic pan & tilt and digital zoom (4X).
- Camera access control – You can control access to the IP camera configuration menus and live video by configuring various user types and log in credentials.
- Analog video output (NSTC/PAL) via BNC connection.

2.2 CAMERA HARDWARE

Physical detail of the IP Camera is provided below.

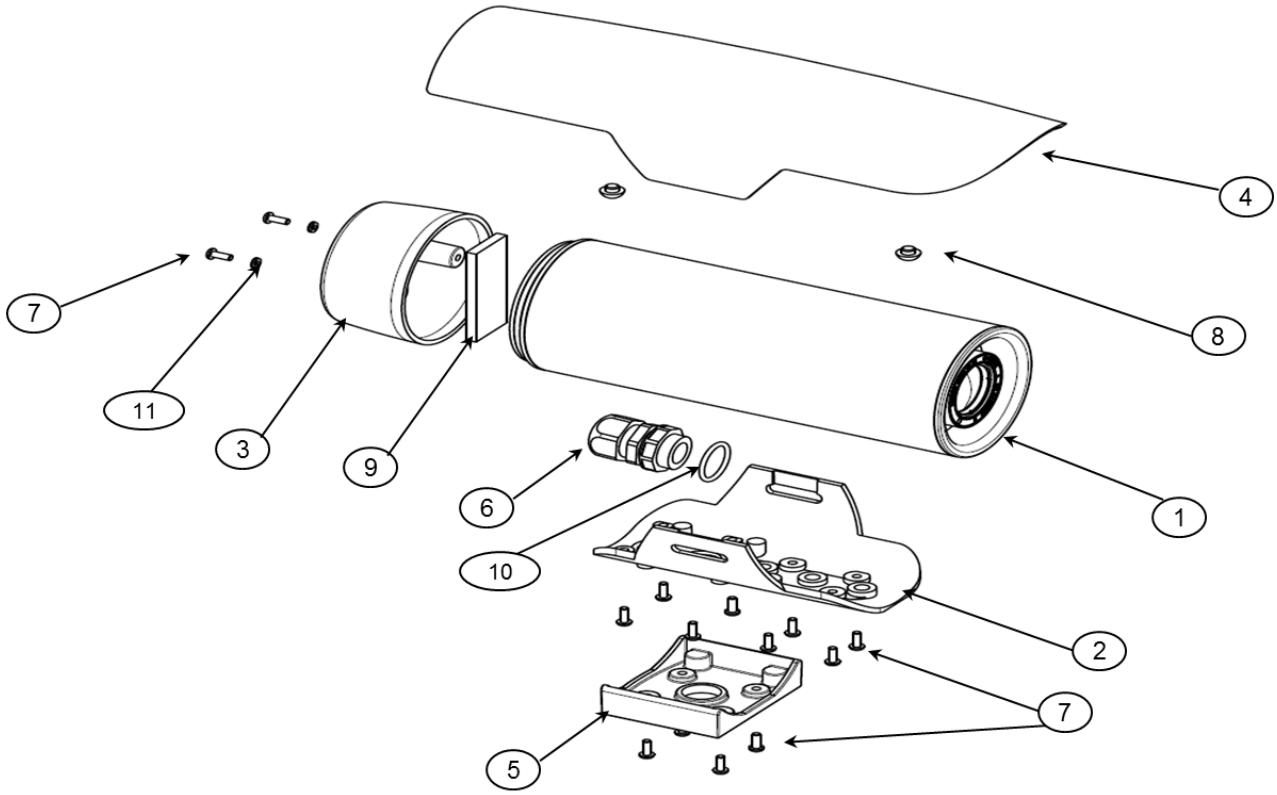


Figure 1: Camera Hardware Overview

Table 1: Camera Hardware Components

Item	Description
1	Camera Body
2	Base Mount
3	Back Cover
4	Solar Shroud
5	4 Hole Axis Mount Adapter (optional)
6	Cable Sealing Gland with electrical nut
7	Tamper Resistant Screws
8	Stem Bumpers
9	Desiccant
10	O-ring
11	Sealing Washers with Gasket

Figure 2 and Table 2 below describe the details of the rear of the camera.

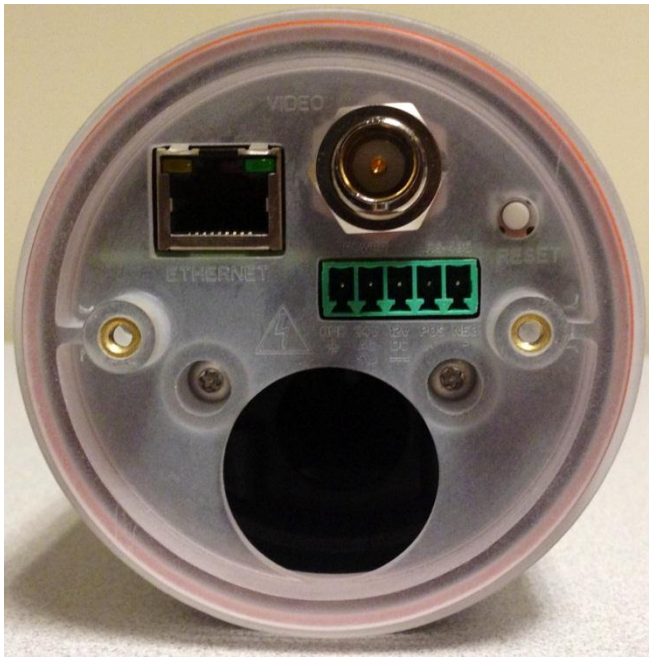


Figure 2: IP Elite 3000 Camera Rear View

Table 2: Camera LED Indicators

Item	Description
Network Port	Accepts a standard LAN cable to connect the IP camera to a 10/100 BaseT Switch or Router.
LED	Indicates information about the network connections as follows: Off – LAN connection is NOT detected Solid Green - 100 MB LAN connection is detected Solid Amber - 10 MB LAN connection is detected Flashing Green/Amber - Data is being transmitted or received via the LAN connection
Analog Video Connector	Accepts a standard BNC terminated coax cable for analog video output. A 90-degree BNC adapter is also pre-installed on the camera (not pictured above).
Power/RS-485 Connector	5-pin terminal block for power input – 2 for AC power input, 1 for DC power input, 1 for Ground, and 2 for RS-485 connections. 12-24V DC or 24V AC power with minimum 13W or 0.54A and 10% tolerance.
Factory Reset Button	Reset button reboots the IP camera and resets it to the factory default state. You can use a pin or paper clip to depress it and hold for at least 6 seconds.

3 SPECIFICATIONS

3.1 QUICK REFERENCE SPECIFICATIONS

The WatchMaster®IP Elite 3000 Specifications is detailed below in Table 3.

Table 3: WatchMaster® IP Elite 3000 Specification Quick Reference Table

Focal Plane Array	
Sensor Type	Uncooled VOx Microbolometer
Array Format	320x240
Pixel Pitch	17 µm
Spectral Band	8 - 14 µm
Sensitivity (NEDT) @ f/1.0	< 50 mK
Video	
Frame Rate	Configurable for up to 30 Frames Per Second (fps) or Fixed at 9 fps
Format	Analog: NTSC/PAL IP: H264/MJPEG
Gain/Level Control	Automatic
4X Digital Zoom	1X-4X; 0.25X increments
Image Polarity	White Hot, Black Hot, Invert, Revert
Zoom	4x Digital Zoom with ePan/eTilt
Image Processing	Local Area Processing (LAP) for superior performance
Communication Interface	
Protocols	Ethernet (10/100 BaseT), ONVIF® Conformant (v 2.0 and Profile S)
Electrical	
Voltage	12-24 V DC, 24V AC, 802.3af Power Over Ethernet (PoE)
Power	<12.95 W with Heater
Environmental	
Operating Temperature	-40°C to+55°C (-40°F to 131°F)
Mechanical	
Dimensions (L x H x W)	25 x 9 x 9 cm
Weight	< 1500 g
Enclosure	IP66, Tamper Resistant

Optics			
Lens	Athermalized Fixed Focus		
Horizontal Field of View (HFOV)	40^{o}	16^{o}	9
f/no	1.2	1.1	1.2
Effective Focal Length	7.5 mm	19 mm	35 mm
Software			
DRS Web Interface	Administrator, Operator, and Viewer with Password Protection		
Hardware			
Embedded Memory	2 GB for Video Storage and Image Capture		

3.2 RANGE PERFORMANCE

The WatchMaster® IP Elite 3000 range data assumptions and performance are provided below. Typical detection and recognition range performance has been modeled for multiple available lens solutions using NVTHERM[1]. See Figure 3.

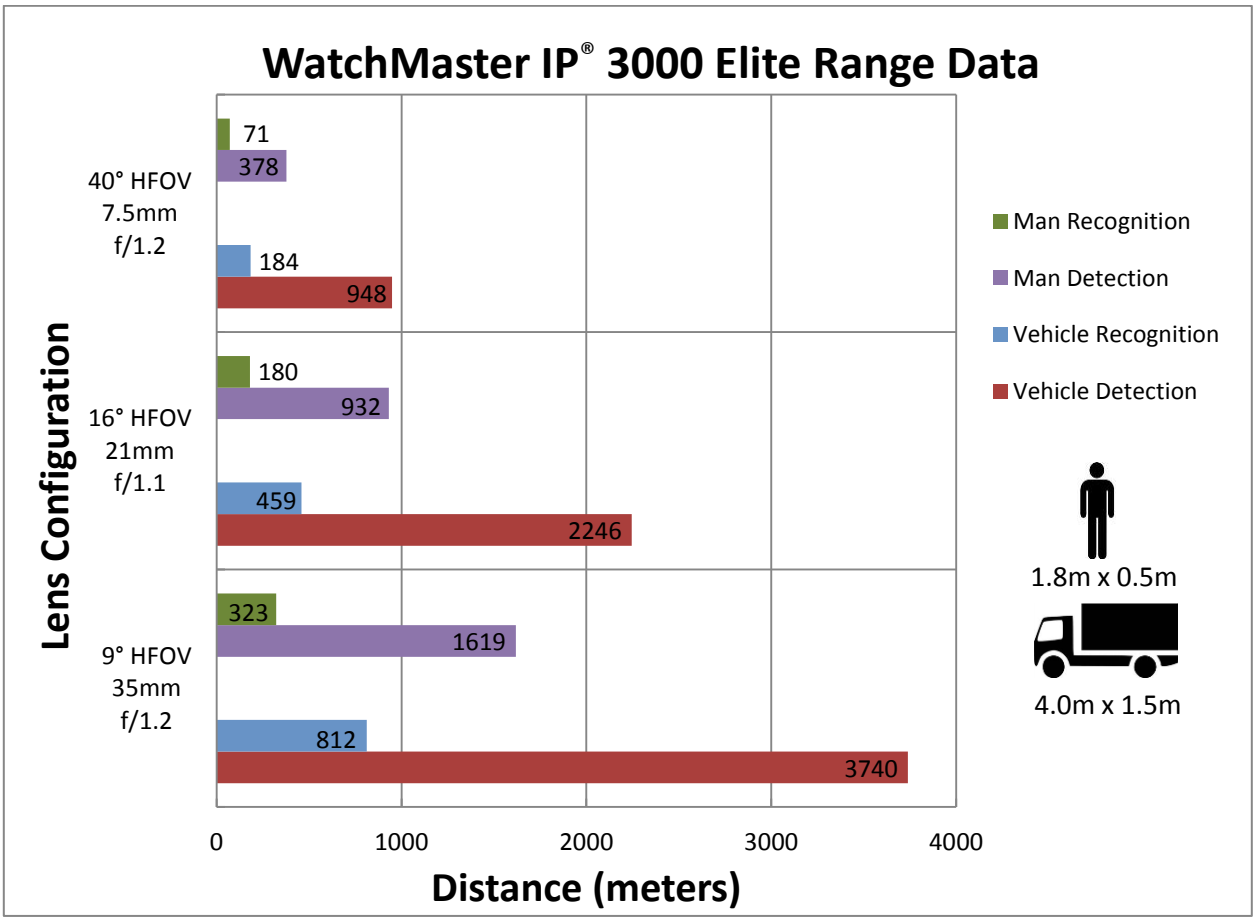


Figure 3: WatchMaster IP Elite Range Data

Data presented above are believed to accurately reflect camera performance under stated conditions but are not guaranteed performance metrics.

[1] Lens transmission and MTF taken from actual design data; No LOS jitter; Atmospheric transmission is clear (90% at 1km), Detector sensitivity 30mK, System sensitivity 50mK; Probability of detection and recognition = 50%; Display: nominal 640x480, 7.5" diag. flat panel with 2:1 interpolation of the 320x240 data. Viewing distance is 21". No E-zoom.

4 INSTALLATION AND ACCESS

4.1 PACKAGE CONTENTS

When unpacking, please note any damage that may have occurred during shipping and review the contents of the package to ensure all components are present. If any discrepancies arise, please notify your authorized dealer or DRS Technologies directly. The list of standard shipping contents is provided below.

- WatchMaster® IP Elite Camera with the Back Cover attached and a brown Desiccant pack inside the cover for shipping
    - The WatchMaster® IP Elite 3000 series also includes a 90-degree BNC Adapter already attached to the back of the camera
- WatchMaster® IP Elite Camera Base Mount
- WatchMaster® IP Elite Camera 4 Hole Axis Mount Adapter
- WatchMaster® IP Elite Camera Solar Shroud
- Hardware Kit with several small plastic bags containing
    - 1 - Cable Sealing Gland with electrical nut
    - 1 - O-Ring
    - 16 - #6-32 X 5/8" screws including 2 spares
    - 1 - White Desiccant for installation
    - 3 - Sealing washers with gasket including 1 spare
    - 3 - Stem Bumpers including 1 spare
- 1 – Power Block (4-pin: IP Elite, 5-pin: IP Elite 3000)
- Quick Start Guide
- End User Licensing Agreement (EULA)

Figure 4: Camera Components

Figure 5: Hardware Kit

4.2 INSTALLATION

WARNING

Installation of the equipment must comply with local and national electrical codes.

WARNING

This product must be connected to a Power Over Ethernet IEEE 802.af compliant power source or a UL Listed “Class 2” power supply rated 12-24V DC or 24V AC minimum 13 W or 0.54 A.

CAUTION

Operating the camera at voltage levels outside the specified range may result in permanent damage to the unit and void the product warranty.

CAUTION

Failure to follow the proper procedure may cause permanent damage to the camera and void the product warranty.

WARNING

DEVICE SENSITIVE TO ELECTROSTATIC DISCHARGE

The camera electronics and electronic interfaces are sensitive to electrostatic discharge. Please follow appropriate ESD procedures when handling the camera and during installation. For PoE installations, DRS strongly recommends the use of STP cabling and an earth grounded end point to ensure proper ESD immunity. For AC or DC powered installations, a properly earth grounded power source is strongly recommended.

CAUTION

To ensure a proper earth ground (between the DRS camera and a PoE switch) DRS strongly recommends the use of Shielded Twisted Pair (STP) cabling. Installations of DRS cameras using a STP cabling and a properly earth grounded PoE switch are tested to comply with industry immunity standards for Electro Static Discharge. Any other installation method may leave the camera at risk and void the warranty.

4.3 INSTALLATION PROCEDURE

The WatchMaster® IP Elite 3000 Camera can be configured for both Ethernet/IP and Analog. The WatchMaster® IP Elite camera can be configured for Ethernet/IP only. You will need the following recommended list of tools (not included) before you can install the IP Camera.

- Power source: PoE Switch, 12-24V DC or 24V AC
- IP Network
- Ethernet Cable (STP Cat5 recommended)
- Tripod or Mounting bracket for mounting the IP Camera
- A Phillips head #2 screwdriver
- 2 Open End Wrenches – 1 inch (25mm), OR adjustable wrenches
- A 6-inch scale OR ruler
- Torque screwdriver set to 10 inch-pounds (Electric or manual)
- Torx (hole in the middle) T10 Pin-In Security bit – 3.5 inch (90mm) in Length
- Hex Wrench
- RJ-45 connecter and
- RJ-45 Crimping Tool
- Suggested Tools for Analog Video (IP Elite 3000 only):
    - Coax Cable
    - Coax Cable Cutter/Stripper
    - BNC Connector
    - BNC Crimping Tool

Figure 6: Recommended Tool Kit

Figure 7: Recommended Analog Tools

4.4 PREPARING THE CABLE

1. Disconnect power from the exposed cable(s) of the standard Bracket.
2. Take the number 2 Phillips head screwdriver and pierce the membrane of the cable gland.
3. If needed, pierce 2 smaller holes on the membrane of the cable gland for AC/DC power wires.
4. Remove the electric nut from the sealing gland.
5. Place the O-ring (Orange) on the threaded end of the cable gland. This is necessary to insure a good seal for IP66.
6. Cut off the RJ-45 connector if using existing Ethernet cable.
7. Feed existing or new cable(s)from the standard Axis or Pelco Bracket through the components in the following order:
    a. 4 Hole Axis Mount Adapter(4 hole flat surface facing the mating Standard Axis Bracket) if required
    b. Base Mount (Flat side first for Pelco Bracket)
    c. Electrical Nut (Convex side) of the supplied Cable Sealing Gland
    d. Bottom of the IP Camera body through the back hole below the connectors

Securing for IP66 (POE only)

1. Slide the Ethernet cable through the threaded end of the cable sealing gland, with Orange O-Ring installed.
2. Measure approximately 4.5 inches of cable slack from the end of the cable to the rubber grommet of the sealing gland. Use a scale to measure the length.
3. Attach one open end wrench onto the flange of the cable gland and tighten the compression nut, with the second open wrench, to approximately 50-55 in-lbs. of torque
4. Assemble a new RJ45 head to the Cat 5 Ethernet Cable.

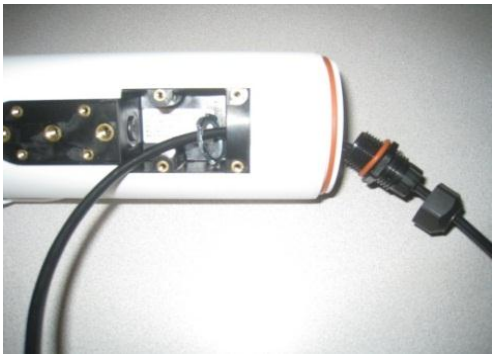


Figure 8: IP66 with POE

Securing for IP66 (Ethernet & AC/DC power):

1. Slide the Ethernet cable through the threaded end of the cable sealing gland, with Orange O-Ring installed.
2. Slide the 2, 20 AWG power wires through the back side of the cable sealing gland.
3. Measure approximately 4.5 inches of cable slack from the end of the cable to the rubber grommet of the sealing gland. Use a scale to measure the length.
4. Attach one open end wrench onto the flange of the cable gland and tighten the compression nut, with the second open wrench, to approximately 50-55 in-lbs. of torque.
5. Assemble a new RJ45 head to the Cat 5 Ethernet Cable.
6. Assemble a mating power connector to the 2 AC or 2 DC power cables.

Figure 9: IP66 with Ethernet and AC/DC Power

Securing for IP66 (Analog & AC/DC Power – IP Elite 3000 Only)

1. Slide the Coax cable through the threaded end of the cable sealing gland, with Orange O-Ring installed.
2. Slide the 2, 20 AWG power wires (and any RS-485 wires) through the back side of the cable sealing gland.

3. Measure approximately 4.5 inches of cable slack from the end of the cable to the rubber grommet of the sealing gland. Use a scale to measure the length.
4. Attach one open end wrench onto the flange of the cable gland and tighten the compression nut, with the second open wrench, to approximately 50-55 in-lbs. of torque.
5. Assemble a new RJ45 head to the Cat 5 Ethernet Cable.
6. Assemble a mating power connector to the 2 AC or 2 DC power cables (and RS-485 cables if used).

For All Configurations

1. Pull the cable(s) taut back through the IP Camera, exposing the thread of the cable sealing gland out of the base of the IP Camera.
2. Assemble the Electrical Nut back onto the gland and tighten the Nut securely until it is finger tight. Use the Hex wrench to tighten the electrical nut to approximately 8 in-lbs. of torque.

4.5 ASSEMBLY

1. Using 8 of the #6 screws, assemble the Base Mount, to the IP Camera. Tighten the 8 fasteners to approximately 10 in-lbs. of torque with the Electric Screw Driver, and T10 Security bit.
2. Using 4 of the #6 screws, assemble the optional Standard 4 hole Mount, to the Base Mount, and tighten the fasteners to approximately 10 in-lbs. of torque with the Electric Screw Driver, and T10 Security bit.
3. Connect the cable(s) to the respective connector:
    a. Ethernet: Ethernet Port
    b. Analog: Analog Video Out (IP Elite 3000 only)
    c. AC/DC Power: Connect wires to power block according the pin-outs on the following page

Figure 10: IP Elite 3000 Pin-Out
Pins 1-3: Power (GND, 24V AC, 12-24 DC/24V AC)
Pins 4-5: RS-485 (POS, NEG)

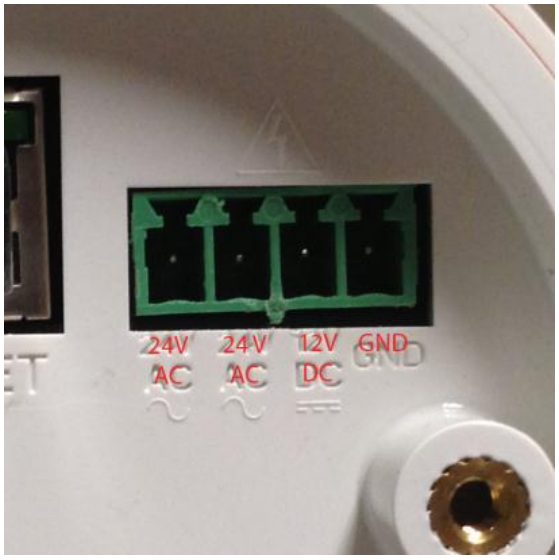


Figure 11: IP Elite Pin-Out (24V AC, 24V AC, 12V DC, GND)

   d. RS-485: Connect wires to power block according to the previous pin-outs (IP Elite 3000 only)

4. Reconnect Power to the existing cable(s).
5. Check for Solid LED on the Ethernet connector to acknowledge connectivity to the IP network. The status LED indicators are:
   a. LED 1: Solid Amber for 10MB connection
   b. LED 2: Solid Green for 100MB connection or Flashing Green for Activity
6. Place the supplied white desiccant into the Back Cover.
7. Assemble the Back Cover to the IP Camera using 2, #6 screws and 2 Master Seal Washers (metal size against the head of the screw and gasket side against the camera body). Tighten the 2 fasteners to approximately 10 in-lbs. of torque.

8. Assemble the 2 Rubber Stem Bumpers onto the 2 detents in the concave surface of the Solar Shroud.
9. Snap the Solar Shroud to the Base Mount.

Figure 12: Possible Configurations of the IP Elite and IP Elite 3000(far right)

Figure 13: POE with Power

Figure 14: Back Cover and White Desiccant

Figure 15: Back Cover Screws and Sealing Washer

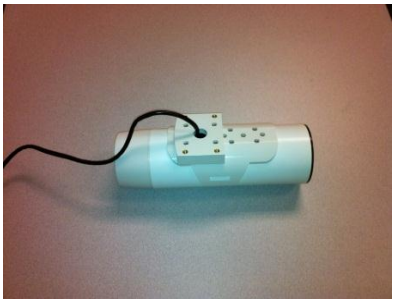


Figure 16: Camera with Base Mount and Axis Mount

Figure 17: Solar Shroud with Stem Bumpers

Figure 18: Fully Assembled Camera

4.6 MOUNTING THE CAMERA

1. The WatchMaster® IP Elite 3000 camera can be mounted on a Pelco or Axis Bracket. For Tripod mount, use the WatchMaster® IP Tripod Adapter offered as an accessory.
2. For Pelco Mount, secure the Camera Base Mount to the Standard Pelco Bracket (not provided) using #1/4-20 screws (not provided).
3. For Axis Mount, first secure the optional Axis mount adapter to the base mount.
4. Position the assembled Camera's 4 hole Axis mount adapter onto the Axis wall bracket and tighten the Metric M5 Screws (not provided). Using a hex wrench, loosen the bracket adjustment screw to aim the camera to the point of interest.

Video of the setup and assembly procedure of the WatchMaster® IP Elite camera can be found at http://youtu.be/tFmwIowRWG8

4.7 MANUAL FOCUS AND FOCUS TOOL

The WatchMaster IP Elite 3000 is set to infinity focus at the factory using a simple collimated target suitable for each FOV. Reviewing the focus during installation of the camera is recommended for optimal image quality so necessary adjustments suitable for the environment and the target object can be made. The independent 40°, 16°, 9° field of view camera lenses can each be focused manually by hand. Make sure not to touch the lens when adjusting the focus. However, the 40° lens may require the use of a focus tool. The focus tool is available from DRS as an optional accessory item. For ordering details, please refer to the DRS WatchMaster IP Elite 3000 price sheet.

Table 4: IP Elite Focus Information

FOV	Effective Focal Length	f/#
40º	7.5mm	f/1.2
16º	19mm	f/1.1
9º	35mm	f/1.2

The camera is now ready for use!

Figure 19: Camera mounted to the Axis Bracket

4.8 ACCESS

1. After installing the WatchMaster™ IP Elite 3000 Camera, you can access the IP Camera to make configuration changes and view live video using the DRS Web Interface. In order to make these changes, you can connect to the IP Camera from any PC on your network. The PC must meet below requirements
2. OS - Microsoft Windows 7 or Windows XP or Windows Vista
3. Browser - Internet Explorer 9.0 or Mozilla Firefox 8.0
4. VLC Media Player Software 1.1.10 or 2.0.0 – can be downloaded from the DRS IP Elite Camera directly through the DRS Web Interface or from http://www.videolan.org/vlc/

4.9 CAMERA DISCOVERY AND IP ADDRESS

To connect to the IP camera for the first time and make initial configuration settings, the IP address must be discovered. It is recommended that the installer have access to the DHCP server to enable direct lookup of the IP Address corresponding to the MAC address of the camera. The procedure for this is network specific.

By default, when the IP camera powers on, it attempts to obtain an IP address from a DHCP server in the network. If the camera cannot obtain an IP address through DHCP within a reasonable time, it will default to an IP address of 192.168.0.200 and a subnet mask of 255.255.255.0.

In the event that the installer does not have access to the DHCP server, Windows Network tool can be used to locate the camera. The below instructions can be used for Windows 7 and Windows XP.

Windows 7 OS: Click on Start, Click on Computer and Click on Network. A list of devices connected to your network will appear as below. Double Click on the name (DRS WM IP Elite) of the camera to launch the default browser. You can see the IP address of the camera in the Browser URL.

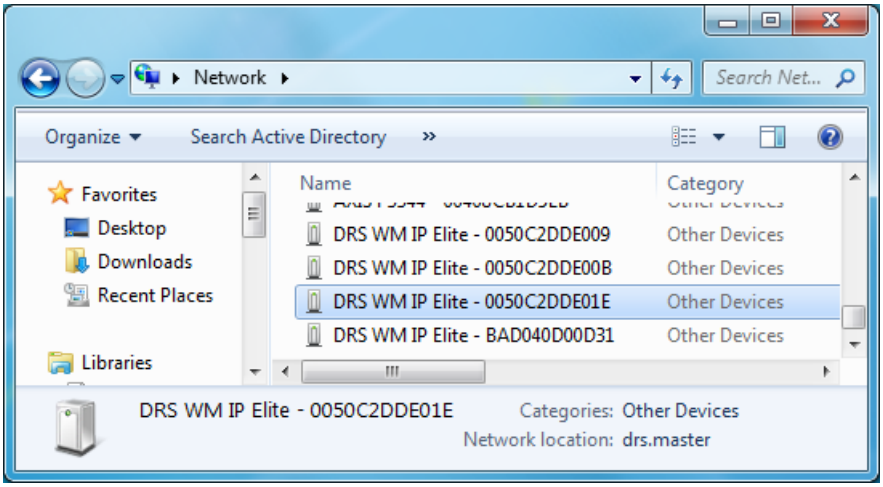


Figure 20 Camera Discovery with Windows 7

Windows XP OS: The procedure for discovering the IP address of the camera using Windows XP requires activation of Universal Plug and Play (UPnP) service. Further details can be found in the DRS WinXP UPnP procedure document.

ONVIF test tools or other 3rd party tools may also be used to discover the camera.

4.10 LOGIN TO THE IP CAMERA

1. Enter the IP address of the IP Camera on the Browser URL line.
2. Enter the default username and password when prompted.
3. Default username and password are given below for Administrator access

Username is **admin (lower case)**
Password is **1234**

If you have not downloaded the VLC Media Player by this time, you can download it from the Camera. After login to the IP Camera, follow the prompt at the bottom of the screen to install the VLC Media Player. The minimum required VLC Media Player version is 1.1.10.

5 CONFIGURATION AND MANAGEMENT

WatchMaster® IP Elite Camera system is an Internet Protocol (IP) networked solution, and is operational in a networked environment through a central office, remote video management system or through the DRS provided Web Interface. This section covers the configuration and management of the IP camera using the DRS Web Interface.

5.1 DRS WEB INTERFACE

The DRS Web Interface main menu is organized as shown in Table 5 and in Figure 21 below.

Table 5: DRS Web Interface Main Menu

Command	Sub-Command
View	Video Stream ePan/eTilt eZoom AGC Mode LAP Level (for IP Elite 3000 only) Contrast Brightness Polarity Image Flip Non Uniformity Correction (NUC) Window Size Snapshot
Motion Detection	Region of Interest (ROI) Selection ROI Coordinates Sensitivity Level Object Size History
Video Storage	Constant Video Recording Video Archive Motion Detection Capture File Transfer
Maintenance	System Status Camera Restart Factory Defaults Local Storage System Updates Logs
Setup	Network Account and User management Camera Functions (Date/Time, Video Streams, Motion Detection)
Logout	Logout

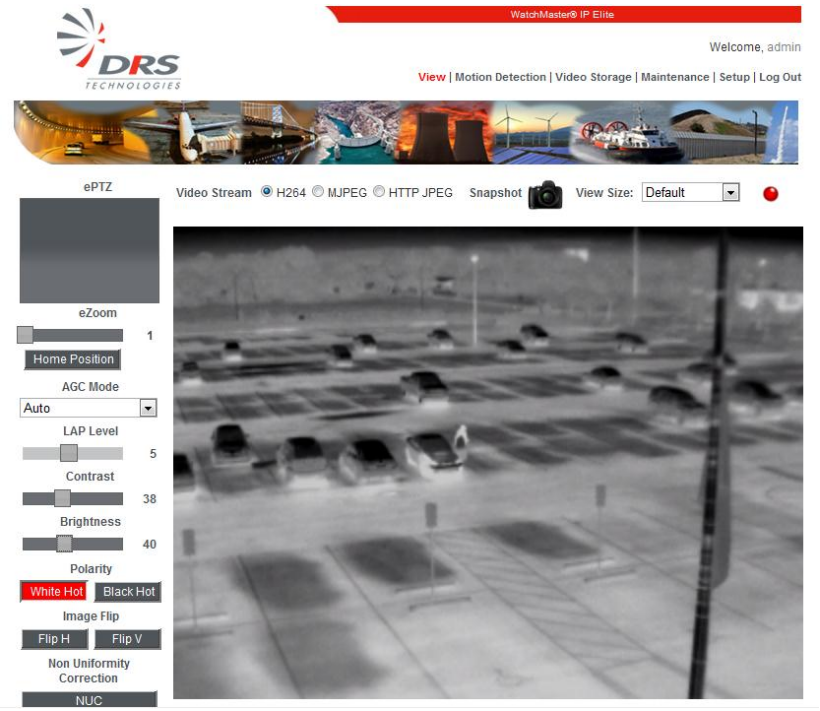


Figure 21: DRS Web Interface and Main Menu

5.2 ACCESS PRIVILEGE

After you log in to the WatchMaster™ IP Elite 3000 Camera, you can access the different menus and perform administrative and user actions using the DRS Web Interface. Administrators can access all of the IP camera menus, features and functions. Operators have access to limited IP camera menus, features and functions. Viewers can only view live video and access image controls. Main menus and access level details are provided in Table 6 below.

Table 6: Camera Main Menu and Access Privileges using the DRS Web Interface

Main Menu	Description	Access Privilege
View	Live video and image controls	Administrator Operator Viewer
Motion Detection	Region of Interest selection and Motion Detection Settings	Administrator Operator
Video Storage	Recording and Storage of video and images	Administrator Operator
Maintenance	System updates, Camera reset, Factory default,	Administrator
Setup	IP Network settings, user and account management and camera controls	Administrator
Logout	Log out of the camera	Administrator Operator Viewer

5.3 SETUP

When you are logged in to the IP camera as a user with administrator privileges, you can access the configuration parameters at any time by clicking the Setup menu. For information about logging in to the IP camera, see Section 4.10 “Login to the IP Camera”. This section covers the setup of the camera. Using the camera setup menu, you can control network settings, manage users and accounts, and certain camera functions including video stream settings and motion detection.

Figure 22: DRS Web Interface Setup Menu

5.4 IP NETWORK SETTINGS

Table 7 and Figure 23 below provide details on configuring the TCP/IP network settings of the camera. These settings will remain saved on firmware upgrades from version 1.2.3238 onward.

Table 7: Network TCP/IP Settings

Network Settings	Description
DHCP	Select the method by which the IP camera obtains its IP address: Dynamic— Choose this option if your network includes a DHCP server for dynamic allocation of IP addresses. Make sure the DHCP server assigns IP address, subnet mask, default gateway and DNS server addresses.
Static IP Address	Static—Choose the DHCP option NO if you want to manually enter the IP address and enter the IP address for the camera.
Subnet Mask	If you configured the IP camera for a static IP address, enter the subnet mask for the IP camera. Use the same value that is configured for the PCs on your network.
Gateway	If you configured the IP camera for a static IP address, enter the gateway for the IP camera. Use the same value that is configured for the PCs on your network.
DNS Server	Enter the IP address of the DNS server that is used in your network. Use the same value that is used for the PCs on your LAN.
Host Name	Default name is DRS WM IP Elite <MAC Addr>. Enter a nickname for the IP Camera, if desired.

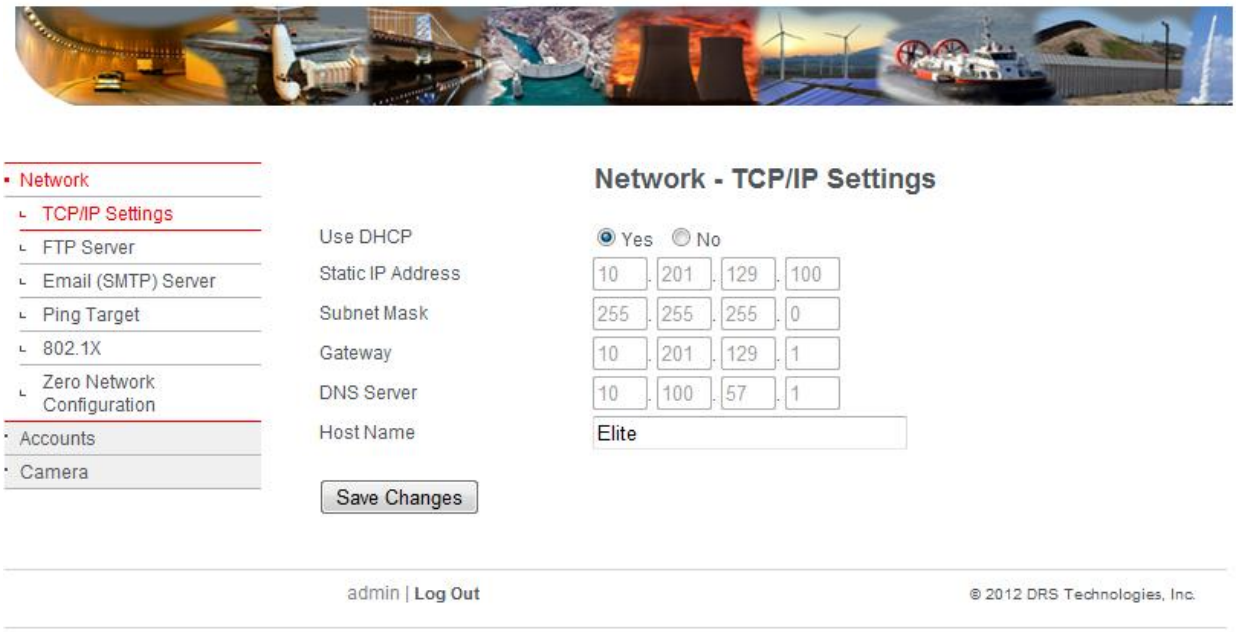


Figure 23: TCP/IP Network settings

5.5 OTHER NETWORK SETTINGS

Table 8 and Figure 24 through

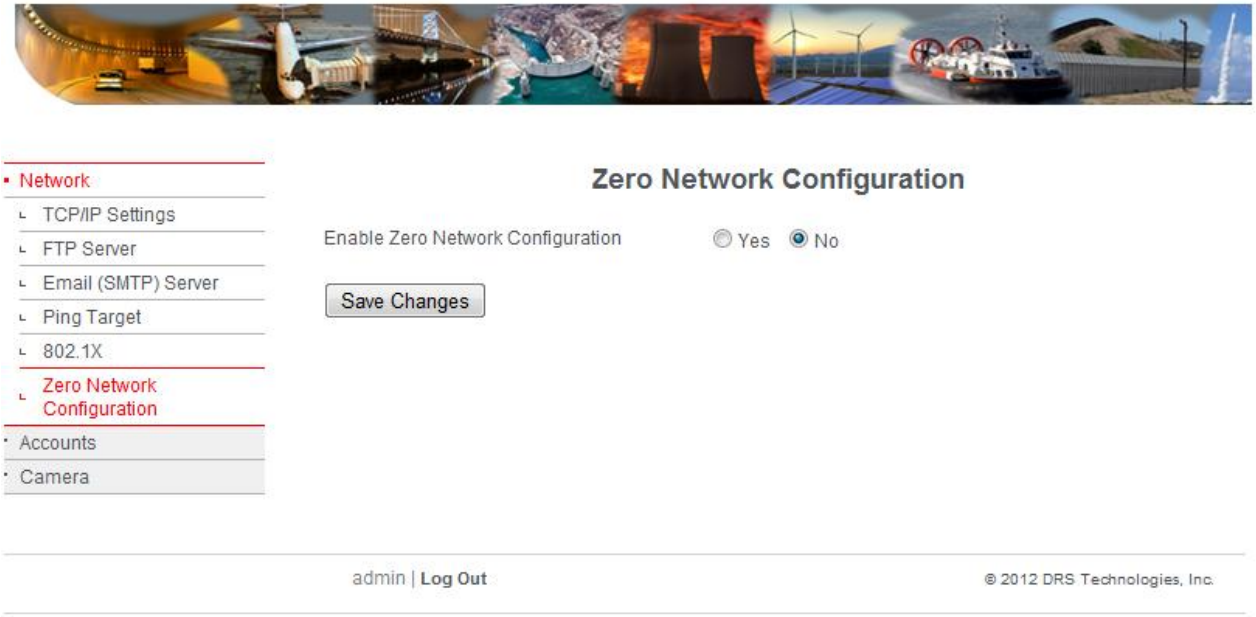


Figure 28 below provides details on configuring other IP network settings of the camera.

Table 8: Other Network Settings

Network Setting	Description
FTP Server	Enter the FTP Server address, FTP port, FTP user name, ftp password and the ftp path name which is a default folder in the ftp server. FTP server may be used for receiving events/alerts triggered by camera motion detection and for storing recorded video images and files.
Email(SMTP) Server	Setting up the email server enables the camera to send email notification to administrators. Check the Enable Authentication box and enter the email username, email password, email sender address, SMTP server IP address and email To address in the respective fields. You can send a test email by pressing the Send Test Email button. Make sure to save the changes by pressing on the Save Changes button.
Ping Target	You can check if the camera is connected to the network by sending a message to another IP entity in the same network. Enter the IP address of the Ping target and hit Refresh Ping Status button to confirm success or failure. Select “Save changes and Ping Target” button to save the changes.

Network Setting	Description
802.1X	IEEE 802.1x is an IEEE standard for port-based Network Admission Control. It provides authentication to clients (IP camera) attaching to a network port. 802.1x is based on Extensible Authentication Protocol (EAP). 802.1X is typically administered on the Ethernet Switch. These settings may require a RADIUS or an equivalent server to be configured in the network to provide the client/camera with authentication. The IP Camera supports the following 802.1X authentication protocols: EAP - MDS EAP - GTC EAP – MS CHAPv2 EAP – TTLS and PEAPv0 MS CHAP v2 Select the EAP type first. Then enter the Path and folder where the root certificate that is required for 802.1x authentication is stored. You can click browse to find this location. After you enter this information, click Upload Certificate to upload the certificate to the IP camera. Enter username and password to unlock the private key in the device/camera certificate. Note EAP – MS CHAPv2 EAP – TTLS and PEAPv0 MS CHAP protocols require certificate.
Zero Network Configuration	Switching to “Yes” will disable the fallback IP address of 192.168.0.200 should DHCP fail and instead default to an Alternative Automatic Private IP address (APIPA). The APIPA is typically a Class B IP address i.e.169.254.x.y. Class B IP address range is 128.0.0.0 191.255.255.255. **Note:** This feature will have no affect if the camera has been assigned a static IP address.

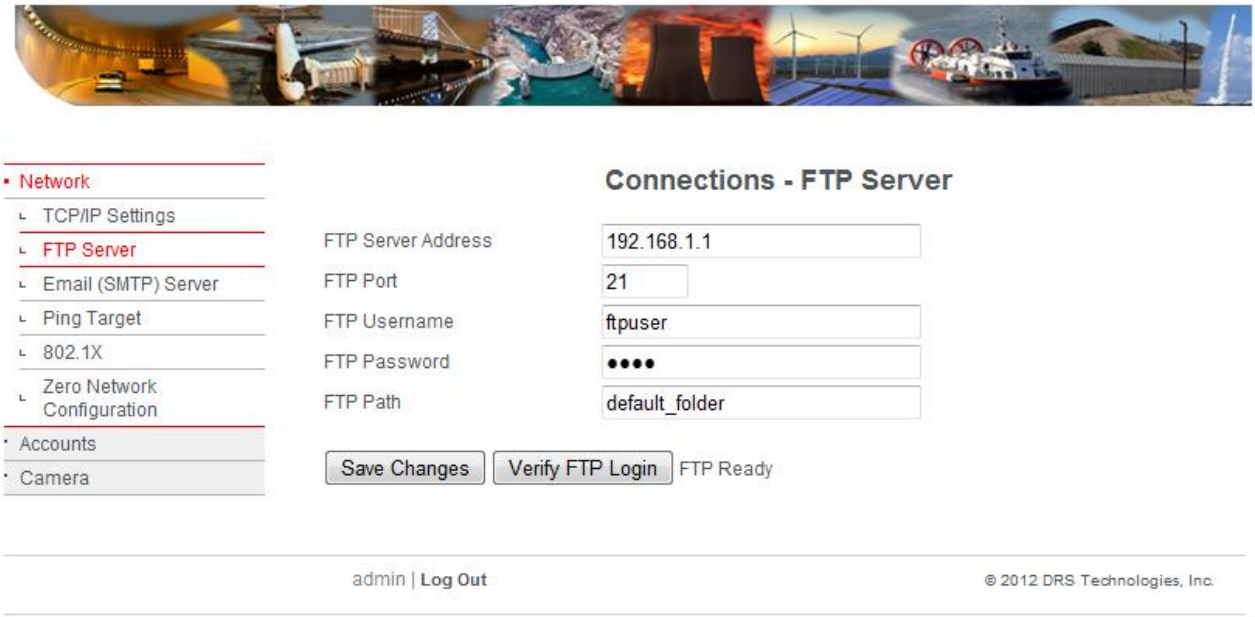


Figure 24: FTP Server settings

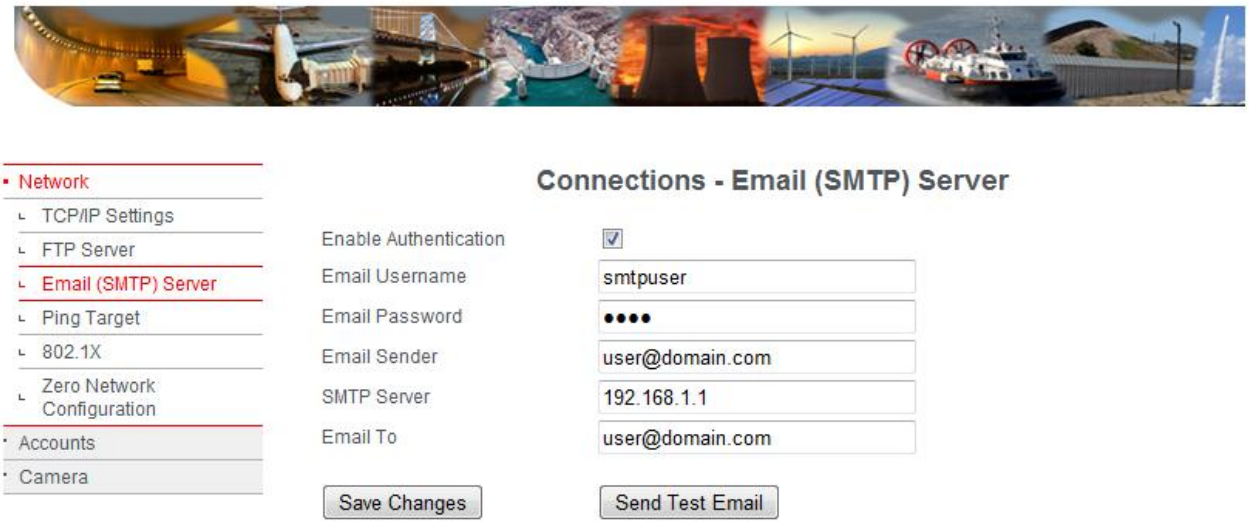


Figure 25: E-mail server settings

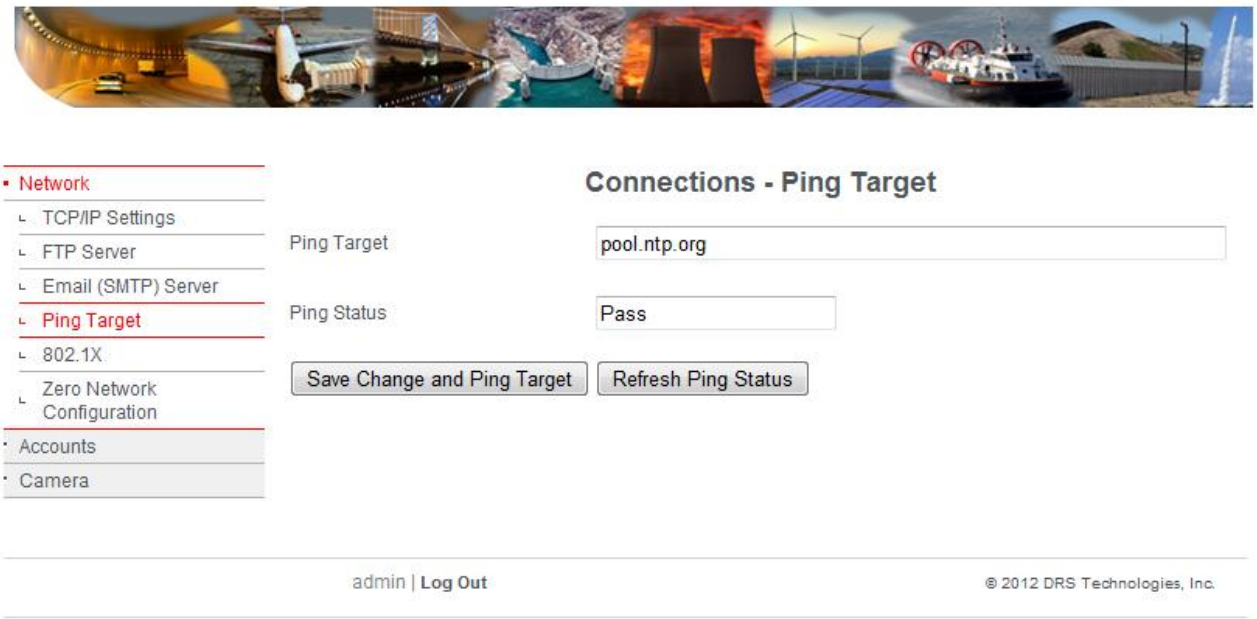


Figure 26: Ping Target Settings

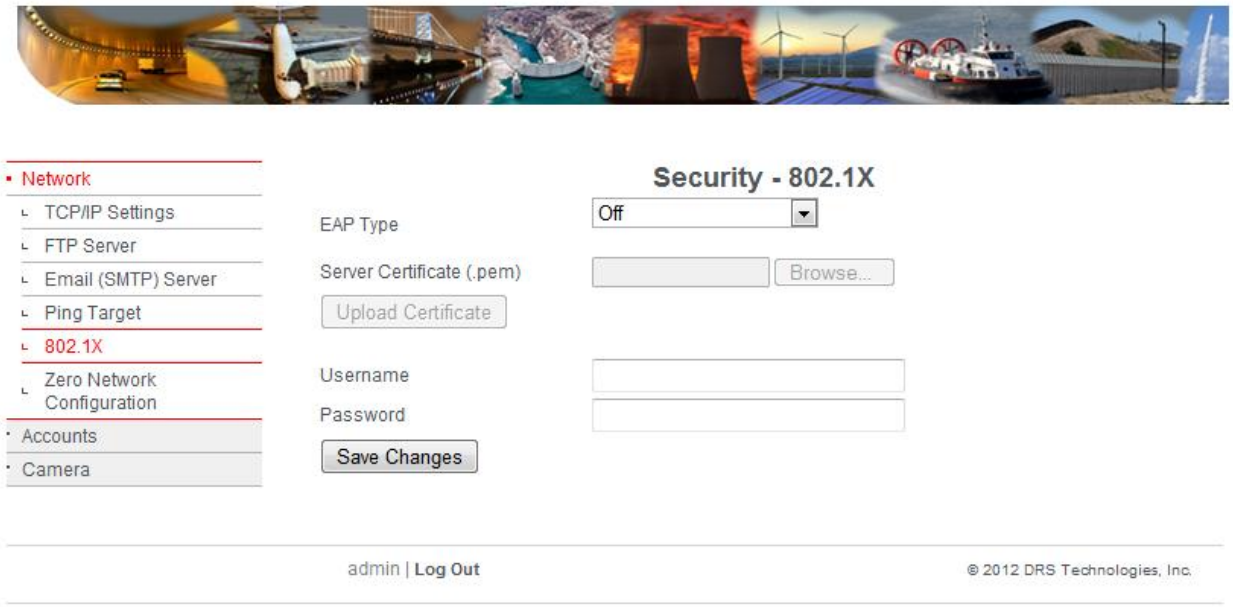


Figure 27: 802.1X settings

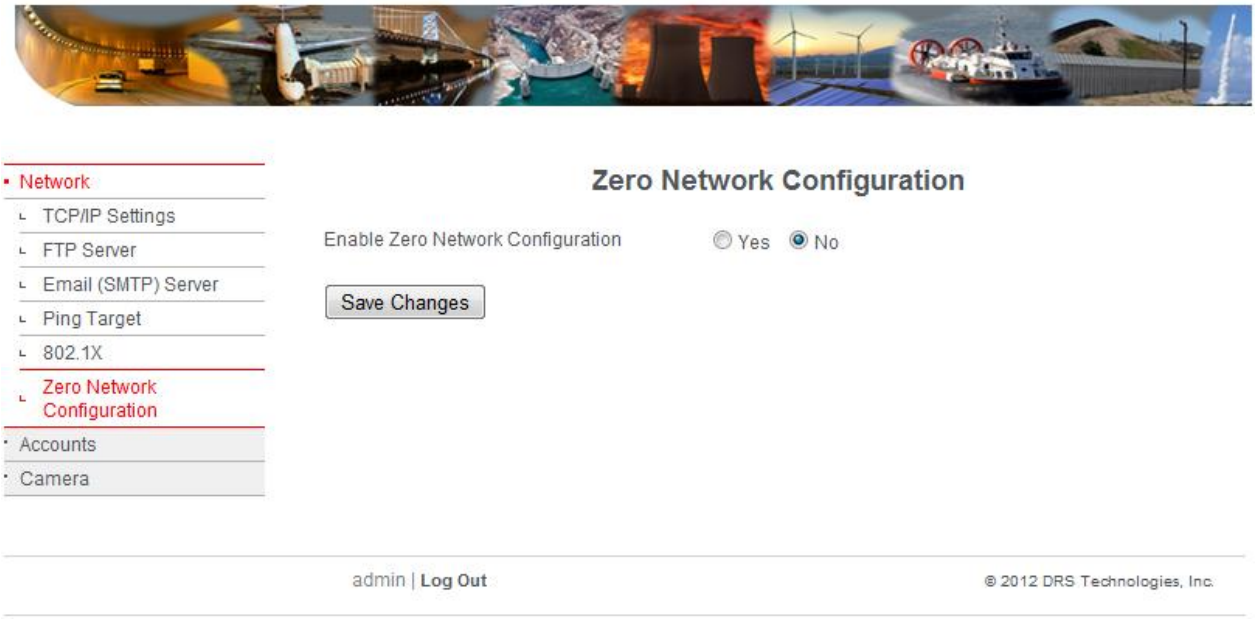


Figure 28: Zero Network Configuration Settings

5.6 ACCOUNTS AND USERS

Table 9 and Figure 29 below provide details on managing accounts and users.

Table 9: Accounts and Users

Accounts	Description
New users	New user accounts can be created for accessing the IP camera. To create a new account, go to the account menu and enter the new user name, select the user class (Administrator, Operator or Viewer) from the User Class drop down menu, enter and confirm the password for the user. Click on the Add User button to add the user. You will see a prompt confirming the user has been added. Repeat this process for adding more users. User name and user class will be updated in the menu.
Existing users	Existing user accounts can be managed and modified. To change the password for an existing user, enter a new password in the New Password field and reenter the password in the Confirm Password field. Click on Update User button to update the password. To assign a different user class to the user, select the appropriate user class (Administrator, Operator or Viewer) from the User Class drop down menu. To delete users, click on delete users.

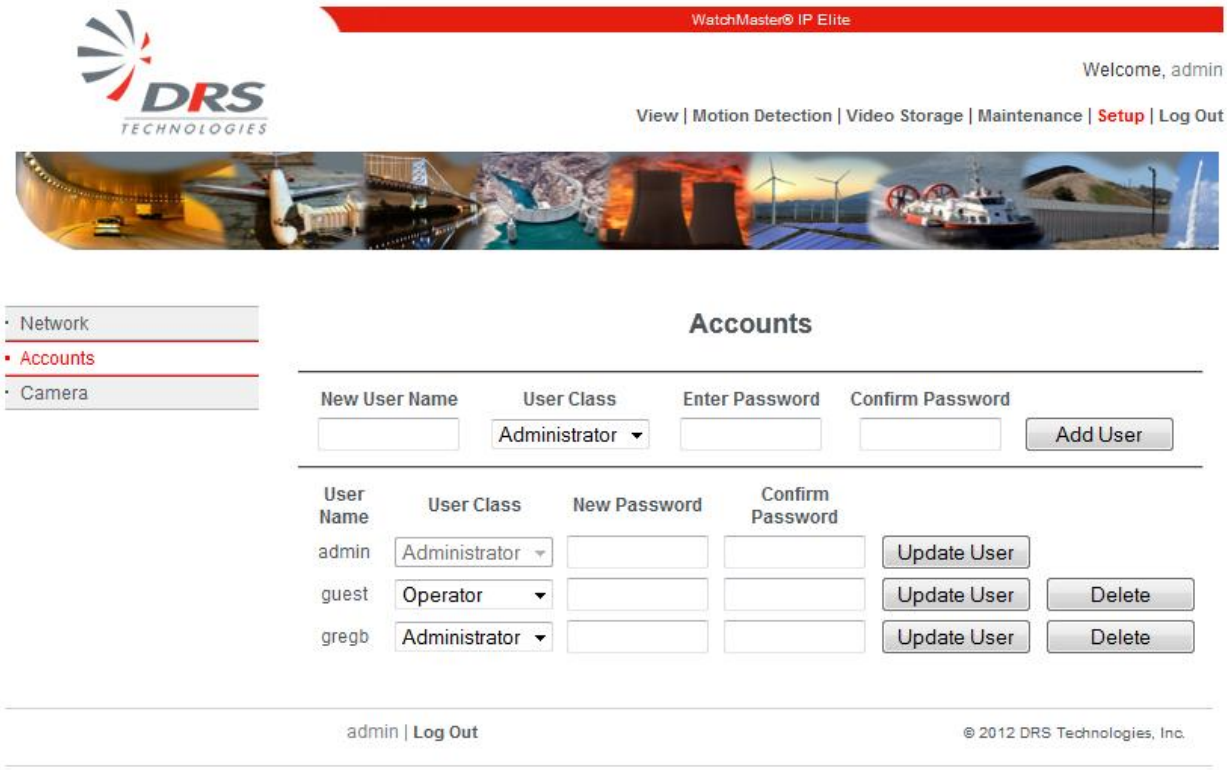


Figure 29: User Accounts

5.7 CAMERA FUNCTIONS

Table 10 and **Error! Reference source not found.** through

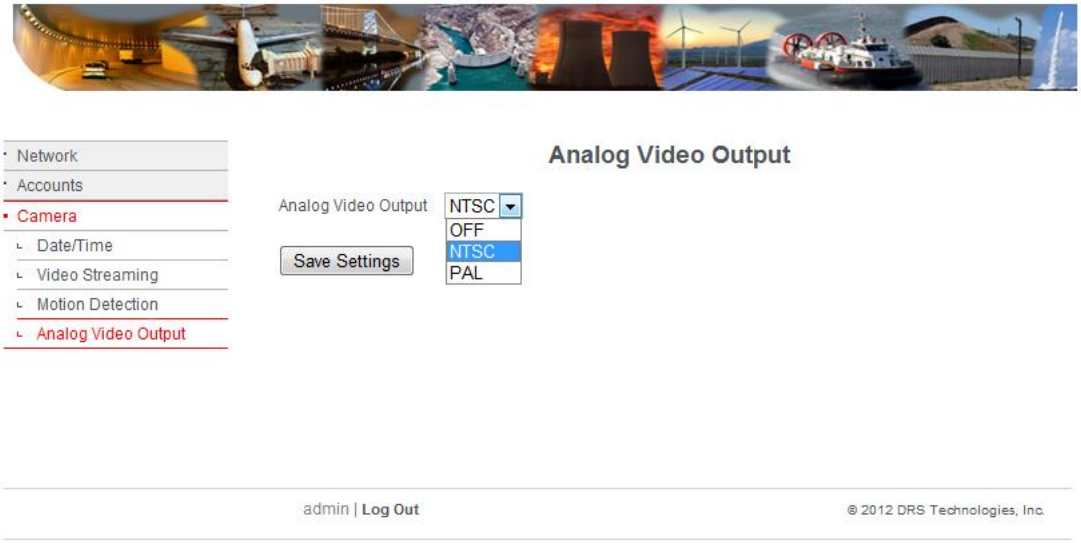


Figure 35: Analog Video Output Settings below provides details on the camera functions. These functions include Date/Time settings, Video Streaming, and Motion Detection. The settings for these functions can be managed by the administrator. Make sure to save any setting changes.

Table 10: IP Camera Functions

Camera Functions	Description
Camera - Date/Time	
NTP Server Settings	NTP time clock can also be over written manually if necessary in the Camera –Date/Time menu. Enter date/time, select the time zone and enable Daylight savings if needed. Confirm by pressing the Set Date and Time button.
Manual Time Settings	If NTP isn't desired or is unavailable, date/time can be manually edited here. Select the time zone and enable Daylight savings if needed. Confirm by pressing the Set Date and Time button. NOTE: NTP must be disabled above in order to save changes.
Video Camera – Video Streaming	
Enable Multicast Streaming	Check this box to select multicast streaming. Make sure your network supports multicasting. Leave the box as unchecked for unicast streaming. The default is unicast streaming.
H264 Multicast Streaming IP Address	Enter the multicast streaming address. Valid range for multicast IP address is between 224.0.0.0 and 239.255.255.255. Typical multicast IP address is 239.x.y.z
H264 Multicast Streaming Port	Enter the multicast streaming port number. Port number can vary between 1 and 65535. Default value is set to 6000.
H.264 Bitrate	Select the appropriate bit rate for H264 video by using the slider. The available range is between 64Kbps to 1000Kbps. This is a common setting for both unicast and multicast.
H.264 Frame rate	Select a frame rate from 10-30. This is a common setting for both unicast and multicast.
H264 Network Cache	Amount of time in milliseconds (ms) that the embedded VLC player will cache. Settings too high may cause latency between live action and stream display. Settings too low may cause instability in the stream display. Default value is DRS tested optimum for selected frame rate.
H.264 RTSP Port	Allows for setting of a custom port for RTSP streaming.
MJPEG Multicast Streaming IP Address	Enter the multicast streaming address. Valid range for multicast IP address is between 224.0.0.0 and 239.255.255.255. Typical multicast IP address is 239.x.y.z
MJPEG Multicast Streaming Port	Enter the multicast streaming port number. Port number can vary between 1 and 65535. Default value is set to 6001.
MJPEG Quality	Select the appropriate bit rate for H264 video by using the slider. The available range is 1% to 98%. This is a common setting for both unicast and multicast.
MJPEG Frame rate	Select a frame rate from 1-30. This is a common setting for both unicast and multicast.

Camera Functions	Description
MJEPG Network Cache	Amount of time in milliseconds (ms) that the embedded VLC player will cache. Settings too high may cause latency between live action and stream display. Settings too low may cause instability in the stream display. Default value is DRS tested optimum for selected frame rate.
MJPEG RTSP Port	Allows for setting of a custom port for RTSP streaming.
Motion Detection	
Send Event to FTP Server	Check this box to send events to the FTP server.
Media Type for FTP Upload	Select either video or JPEG still image to send to FTP server.
Send email notification	Check this box to send email notification of events.
Media Type for email Notification	Select either video or JPEG still image to send to FTP server.
Save Event Video to Local Analytics Folder	Check this box to save events to a local folder.
Pelco-D Settings	Set Pelco-D address and Baud Rate to allow for Pelco-D control of the camera. (IP Elite 3000 only)
Analog Video Output	Set analog video output to NTSC/PAL or disable analog video completely. (IP Elite 3000 only)

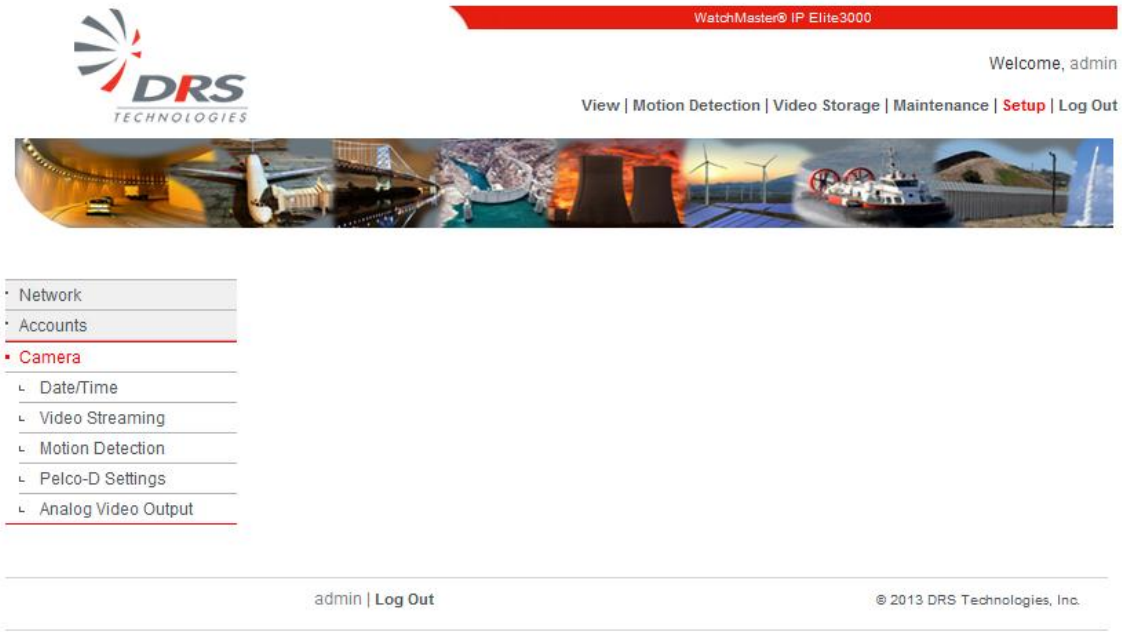


Figure 30: Camera Functions Menu

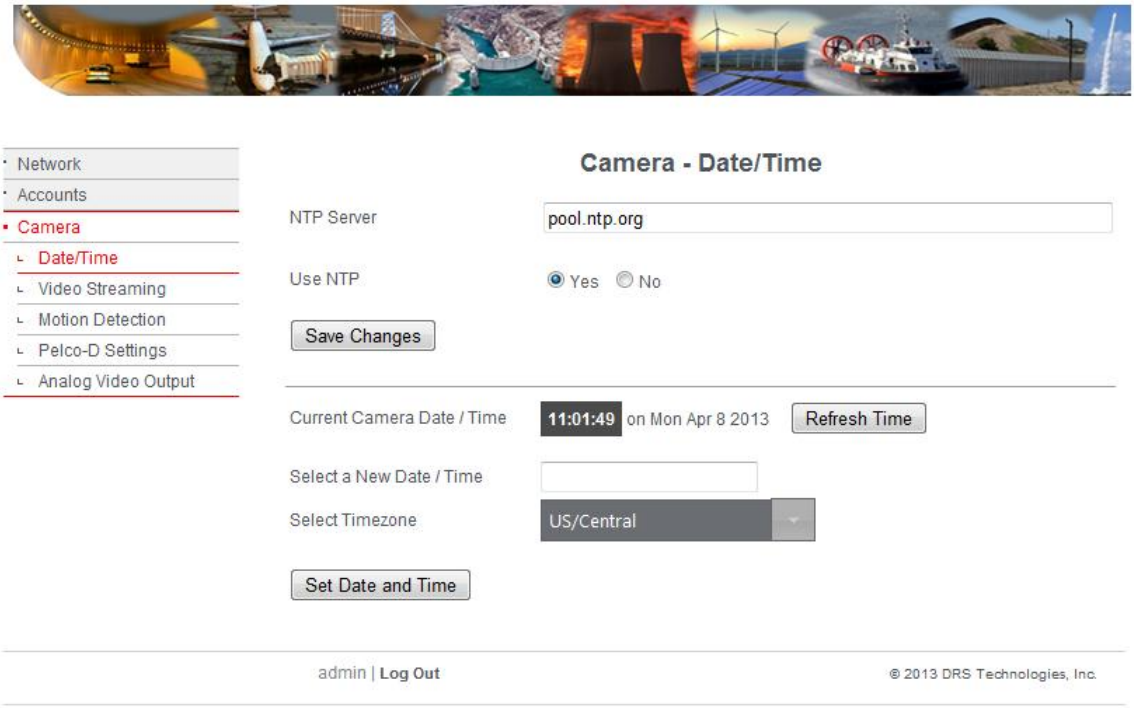


Figure 31: Camera Date and Time settings

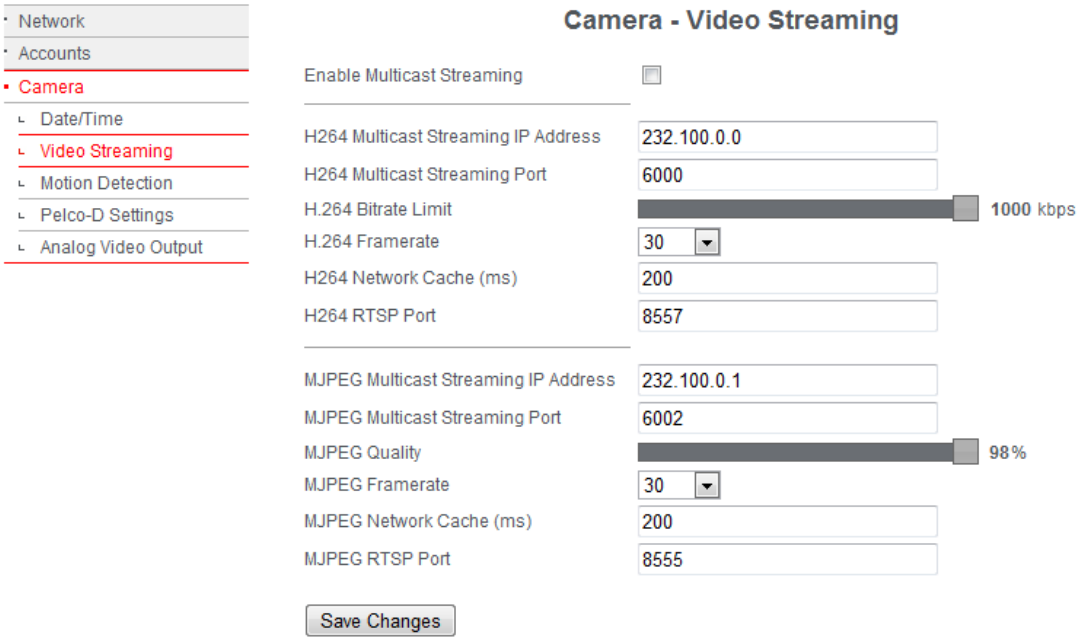


Figure 32: Camera Video Streaming settings

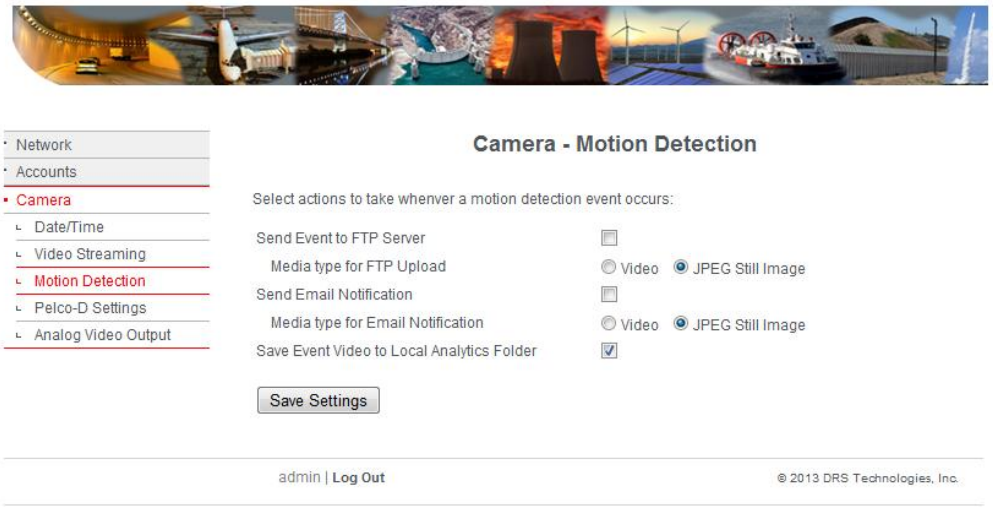


Figure 33: Camera Motion Detection settings

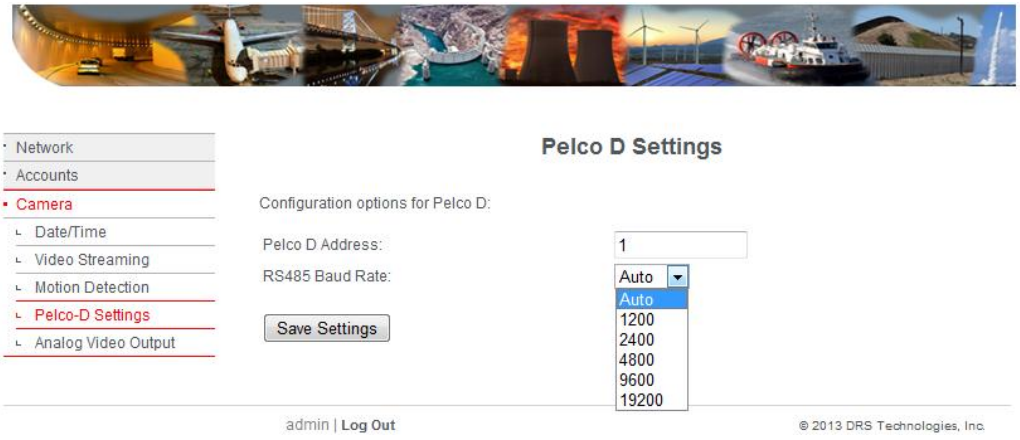


Figure 34: Pelco-D Settings

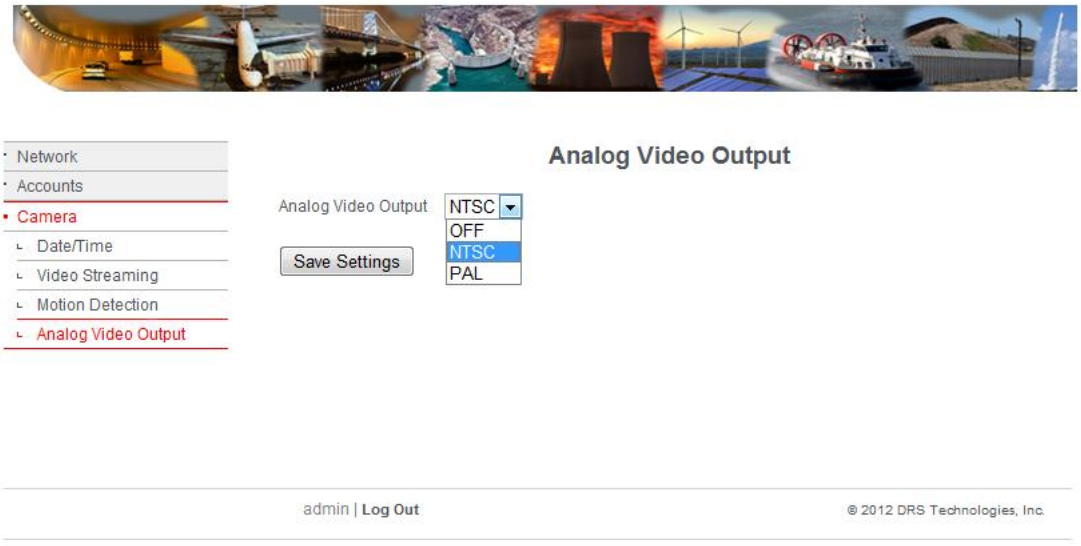


Figure 35: Analog Video Output Settings

6 USE AND APPLICATION

The WatchMaster® IP Elite 3000 camera can be used for a variety of Security & Surveillance Applications. Live video can be easily accessed and managed using the DRS Web Interface for any of these applications.

6.1 LIVE VIDEO

All users can view video, select video stream (H264/MJPEG/HTTP JPEG), configure Automatic Gain Control (AGC) mode, LAP Level (for Indoor/Outdoor LAP AGC settings), image polarity (black hot, white hot), flip images, adjust the zoom, and control contrast/brightness of the Camera. Table 11 and Table 12: RTSP URIs, and Figure 36**Error! Reference source not found.** through Figure 38 below provide details on the various controls.

A VLC media player is required to view live video. VLC media player is available as part of the Camera software and can be downloaded by the users. The camera will prompt the user for VLC download when the camera is accessed for the first time.

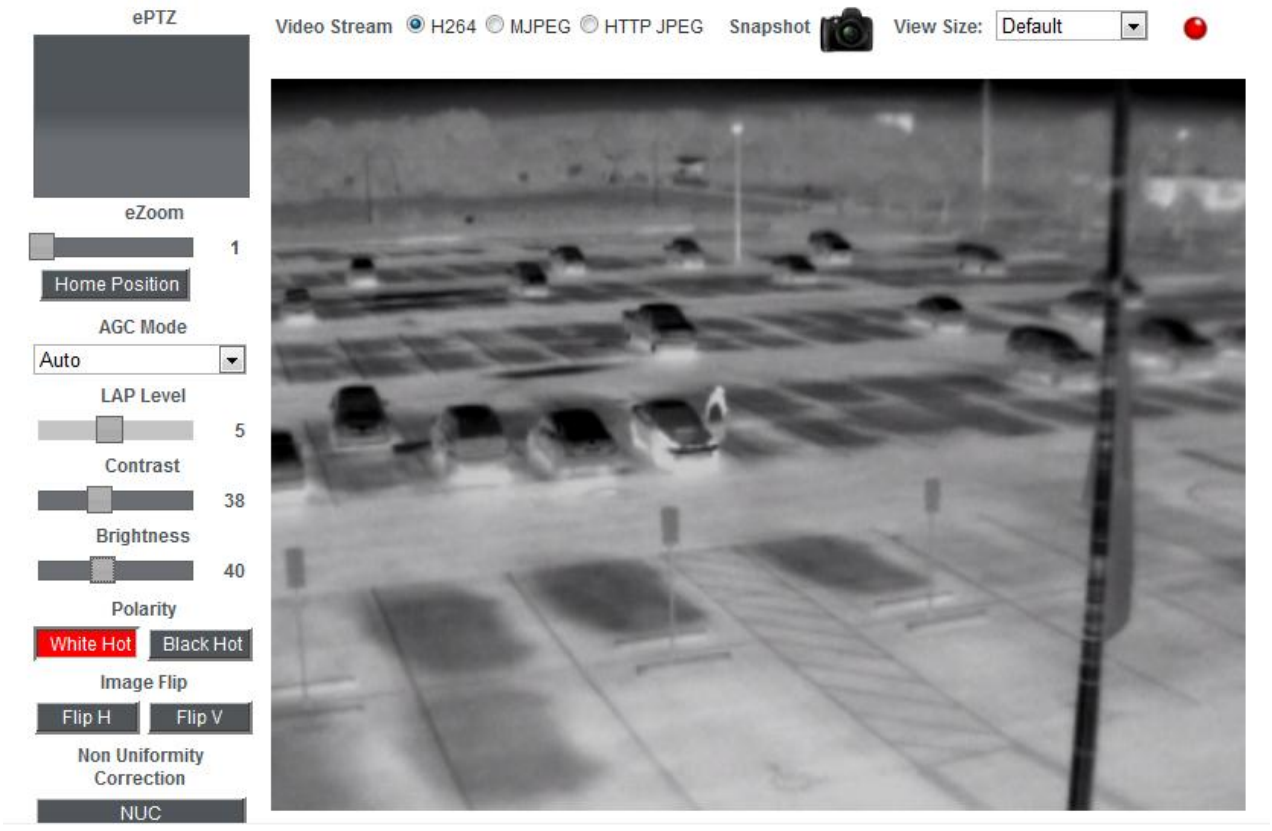


Figure 36: Live Video and View Menu

Table 11: Live Video and Controls

Live Video	Description
Video Stream	Select the appropriate video stream H264, MJPEG, or HTTP JPEG. It is possible to select multiple video streams from a single camera. However, separate browser windows are required to do this.
Take Snapshot	Takes a Snapshot of the image.
Window Size	The video viewing window can be adjusted to a different size i.e. 320X240 or 160X120. The default size is 640X480.
Constant Recording Notification	The indicator above the top-right corner of the image will indicate whether constant recording is active (red dot) or inactive (gray dot).
Video ePTZ	Select a zoom other than 1X. Hold the zoom window inside the ePTZ area and use the mouse to move the rectangle sideways or up or down.
Video eZoom	The IP Camera supports 4X Zoom. Use the slider to control the zoom from 1X-4X in increments of 0.25X.
Video Home Position	Click on the Home Position to get back to 1X zoom. This is also the default setting.
AGC Mode – Auto	Automatic Gain Control (AGC) adjusts the gain and level of the entire scene, in real-time, providing an image with optimum average contrast and brightness.
AGC Mode – Freeze	Hold turns off/freezes AGC at its current level.
AGC Mode – Indoor LAP	Enhanced gain control that will prevent the darkening of scenes when hot objects appear and will also reduce detector noise. Best used in low contrast scenes often found indoors.
AGC Mode – Outdoor LAP	Amplify detector noise to enahnce images of high contrast scenes often found outdoors.
LAP Level	Adjust the strength of the above LAP settings.
Contrast	Adjust the contrast by moving the slider. Range is from 1-100%
Brightness	Adjust the contrast by moving the slider. Range is from 1-100%
Polarity-White Hot	Hot pixels are shown as white and cold pixels are shown as black
Polarity-Black Hot	Hot pixels are shown as black and cold pixels are shown as white
Image Flip – Flip H	Flips the image from left to right
Image Flip – Flip V	Flips the image from top to bottom
Non Uniformity Correction (NUC)	A NUC is performed automatically to compensate for temperature variations. NUC can be forced manually by clicking on the NUC button. NUC interval can also be set using the maintenance/camera functions menu.

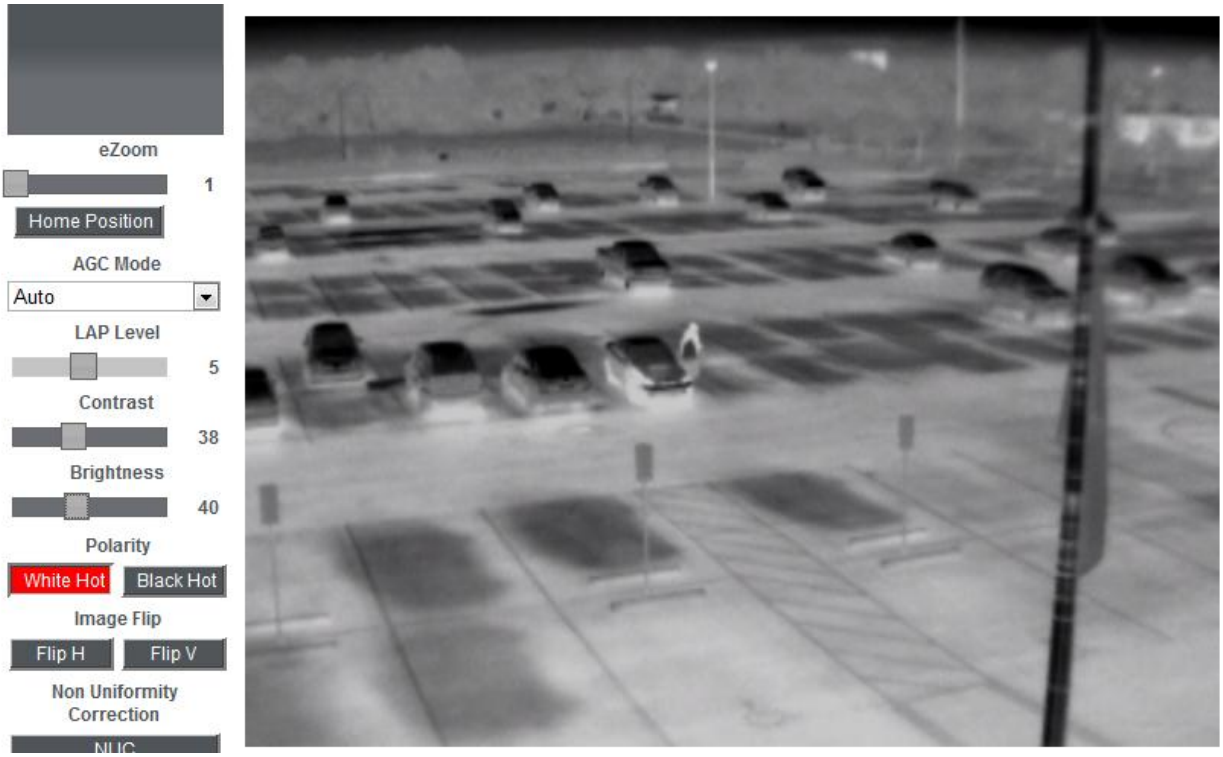


Figure 37: Live Video Image with Auto AGC

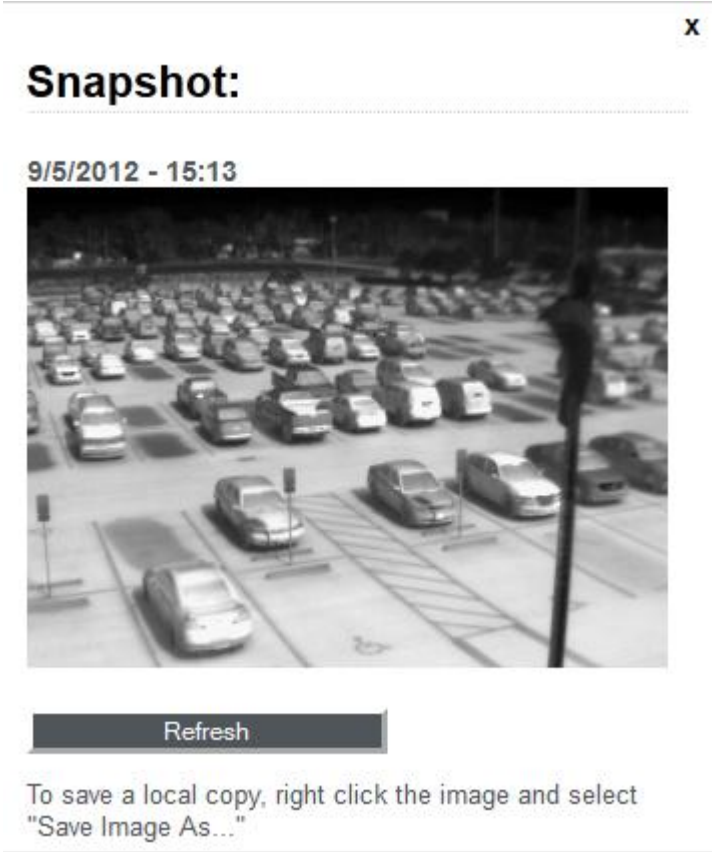


Figure 38: Snapshot

Live video can also be viewed by using the following RTSP URLs below:

Table 12: RTSP URIs

Codec	URL	Transport Method
H.264	rtsp://<camera ip>:8557/2?videoCodecType=H.264	UDP/TCP
MJPEG	rtsp://<camera ip>:8555/0?videoCodecType=MJPEG	UDP/TCP
H.264	rtsp://<camera ip>:8080/2?videoCodecType=H.264	HTTP
MJPEG	rtsp://<camera ip>:8081/0?videoCodecType=MJPEG	HTTP
H.264	rtsp://<camera ip>:8557/12?videoCodecType=H.264	Multicast
MJPEG	rtsp://<camera ip>:8555/10?videoCodecType=MJPEG	Multicast

6.2 MOTION DETECTION

The IP camera offers Motion Detection capability. Motion Detection is the ability to automatically detect items/events of interest without an operator having to view the video. IP camera provides the capability via the Motion Detection menu to define a Region Of Interest (ROI) by dragging/sizing the image window using the mouse. Up to 16 Regions Of Interest can be defined. ROI can also be defined by entering the X&Y coordinates in the ROI coordinates box. Motion detection is triggered based on Sensitivity Threshold, Object Size, and History settings. Each setting has a specific function that adjusts the motion detection algorithm.

Figure 39 through Figure 41 and Table 13 below detail all motion detection settings.

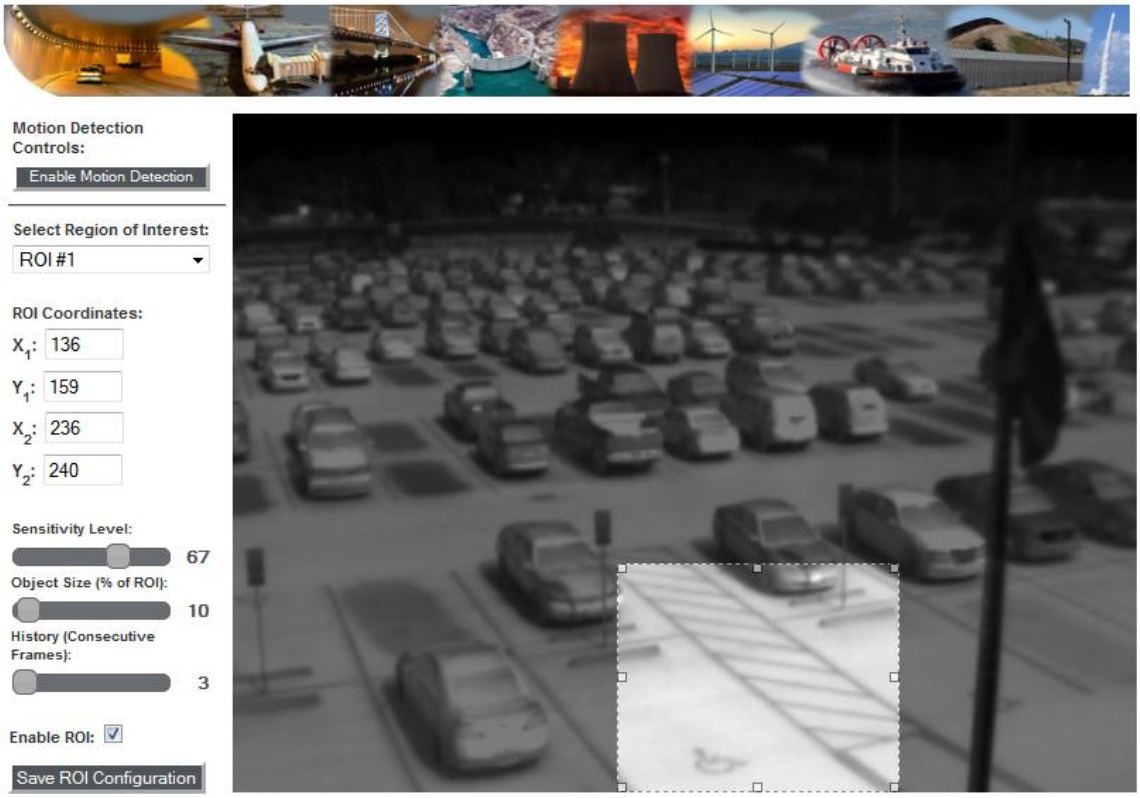


Figure 39: Motion Detection Menu

Table 13: Motion Detection Settings

Motion Detection	Description
Enable Motion Detection	Press the Enable Motion Detection button to enable the analytics. The color of this button turns to Red. Pressing again will disable motion detection.
Video Select a Region of Interest (ROI)	Click and drag on the image to select a region of interest. Up to 16 ROI can be defined.
ROI Coordinates	ROI can also be defined by entering the X1, Y1, X2, Y2 coordinates in the ROI coordinates box. This will define the boundary of the rectangular area of interest.
Sensitivity Level	Adjusts the amount of change required in the video to trigger the motion detection event within a ROI. Higher values allows for greater sensitivity. Values range from 1-100.
Object Size (% of ROI)	Determines the percentage of area within the ROI that must change (based on the sensitivity level) to trigger a motion event. Increasing and decreasing this value provides for fine-tuning to detect only objects of a certain size like a person or a vehicle. Values range from 1-100.
History (Consecutive Frames)	Determines how many consecutive frames must register motion before the camera registers a motion event based on the Sensitivity Level and Object Size settings. Values range from 1-100.
Enable ROI	Check the Enable ROI button to make the current ROI active if Motion Detection is enabled.

Motion Detection	Description
Save ROI Configuration	Click on save ROI button to save the settings and changes made.

Figure 40: Region of Interest (ROI) settings

Figure 41: Enable Motion Detection Button Activated

6.3 VIDEO STORAGE

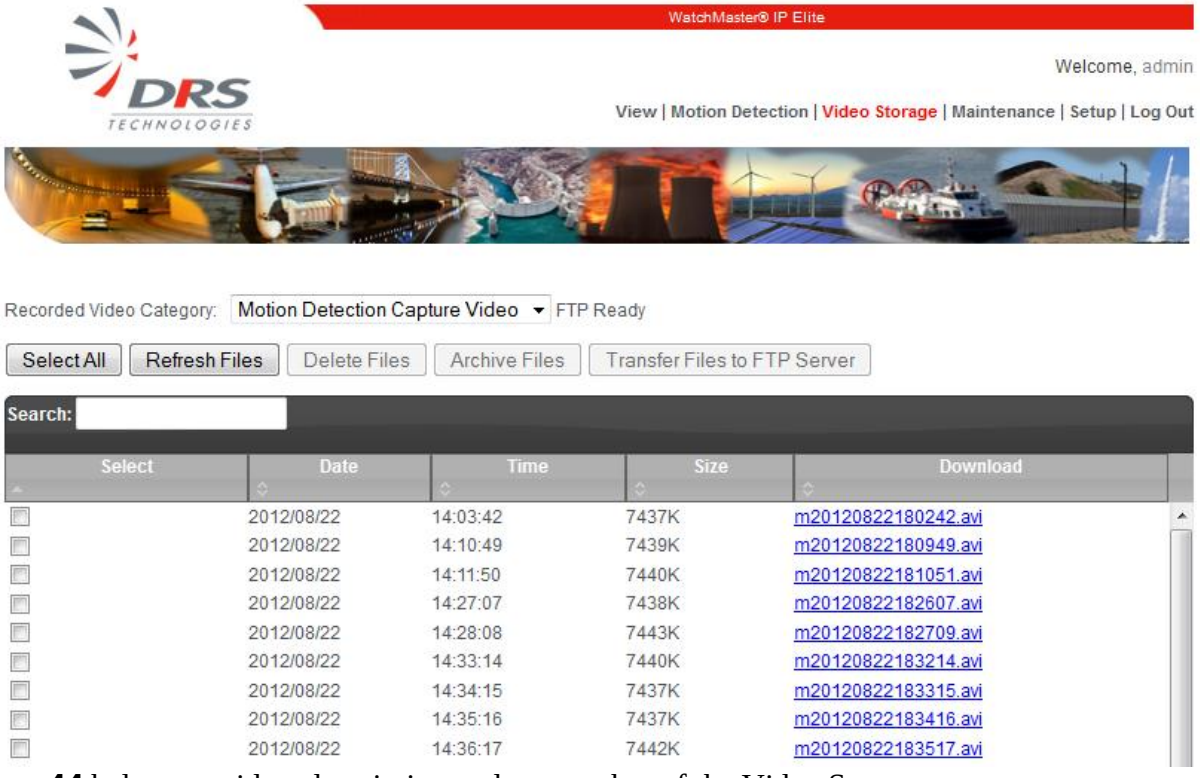
6.3.1 Access to Video Storage

The IP Camera can record video and store video and images on the camera internal memory. The stored video and images can be transferred to an FTP server manually.

6.3.2 Web Interface Access to Video Storage

The IP Camera can record video and store video and images on the camera internal memory. The images are archived by date/time and can be retrieved easily. There are 3 options for the Recorded Video Category. The first and the default is the Constant Recorded Video. Users can see the list of the recorded video files, and these files are in AVI format and recorded at approximately 1 minute intervals. The second option is Video Archive. This selection provides a list of video files that have been selected and archived. Motion Detection Capture Events is the third Recorded Video Category. Video recordings that have been triggered by a motion detection event, such as motion detection, will be stored under this category. Under any of these categories, users can select files and transfer, archive or delete files.

Table 14 and Figure 42 through Figure **44** below provide a description and a snap shot of the Video Storage menus.



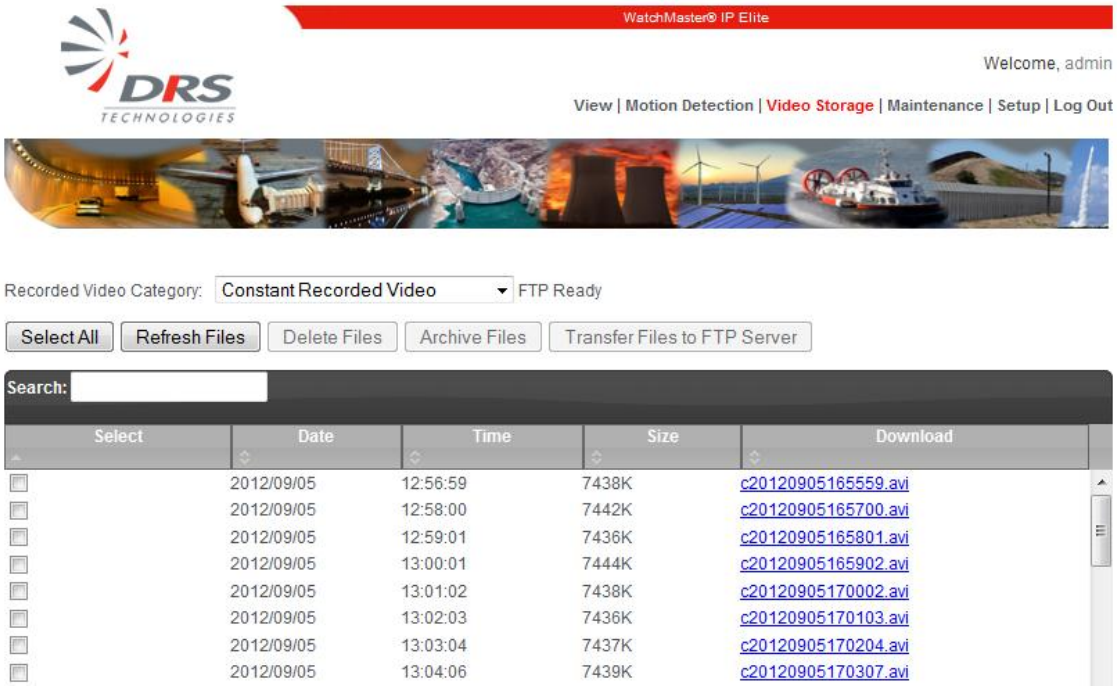


Figure 42: Video Storage Menu

Table 14: Video Storage and Recording

Video Storage	Description
Recorded Video Category	There are 3 video categories in the pull down menu. These categories are Constant Recorded Video, Video Archive and Motion Detection Capture Events. Select one of these 3 options. The default option is Constant Recorded Video.
Video Archive	Select this option to view the archived files.
Motion Detection Capture Events	Select this option and events triggered by motion detection are available for view and actions.
FTP Ready	“FTP Ready” indicates that FTP server information has been entered and ftp login has been verified. Details on setting up the ftp server can be found in Section 5.3.2 other network settings.
Select All	Press the Select All button to select all the files. Individual files can be selected by checking the box next to each file.
Refresh Files	Press this button to do a refresh of the files.
Delete Files	Press the Delete Files button to delete the selected files.
Archive Files	Press the Archive Files button to archive the selected files. Archived files can be viewed from the Video Archive pull down menu.
Transfer Files to FTP Server	Select files and press on Transfer to FTP Server button to transfer the files to the FTP server. Click ok in the pop up confirmation window. Another pop up window will confirm the file has been successfully moved to the FTP server.

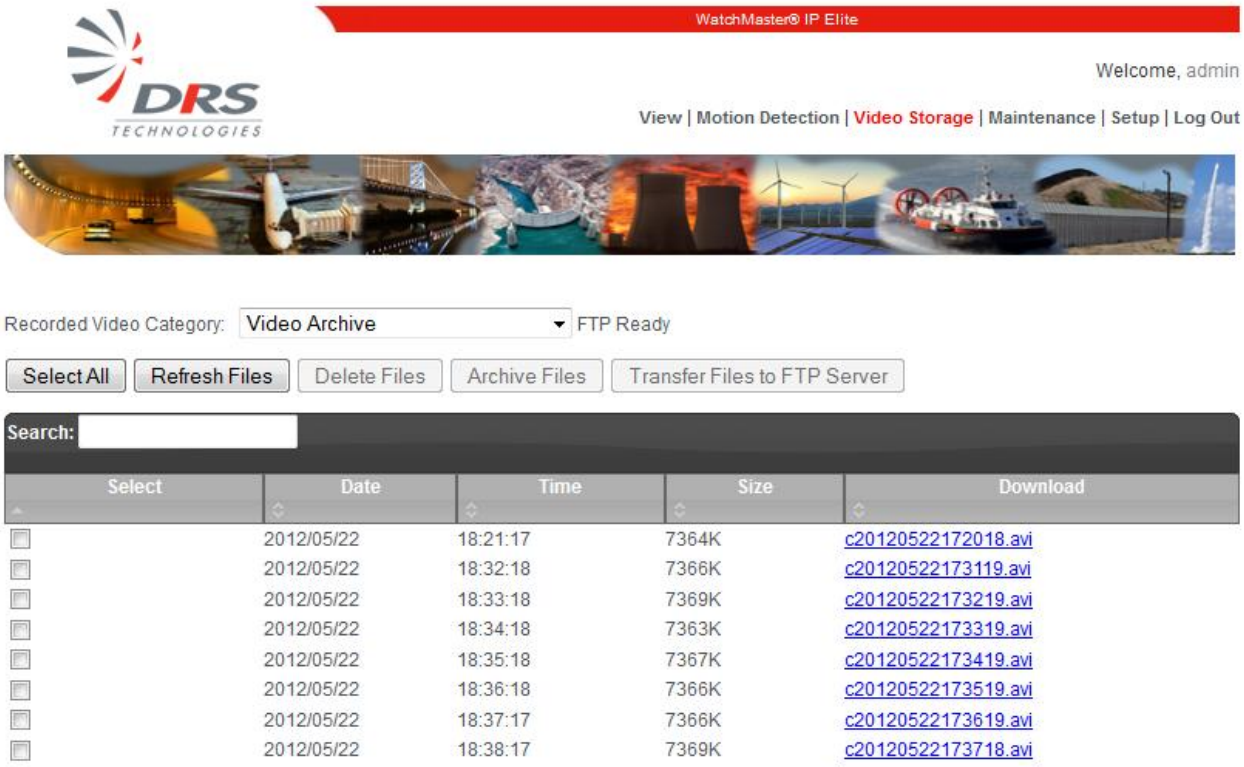


Figure 43: Video Archive Menu

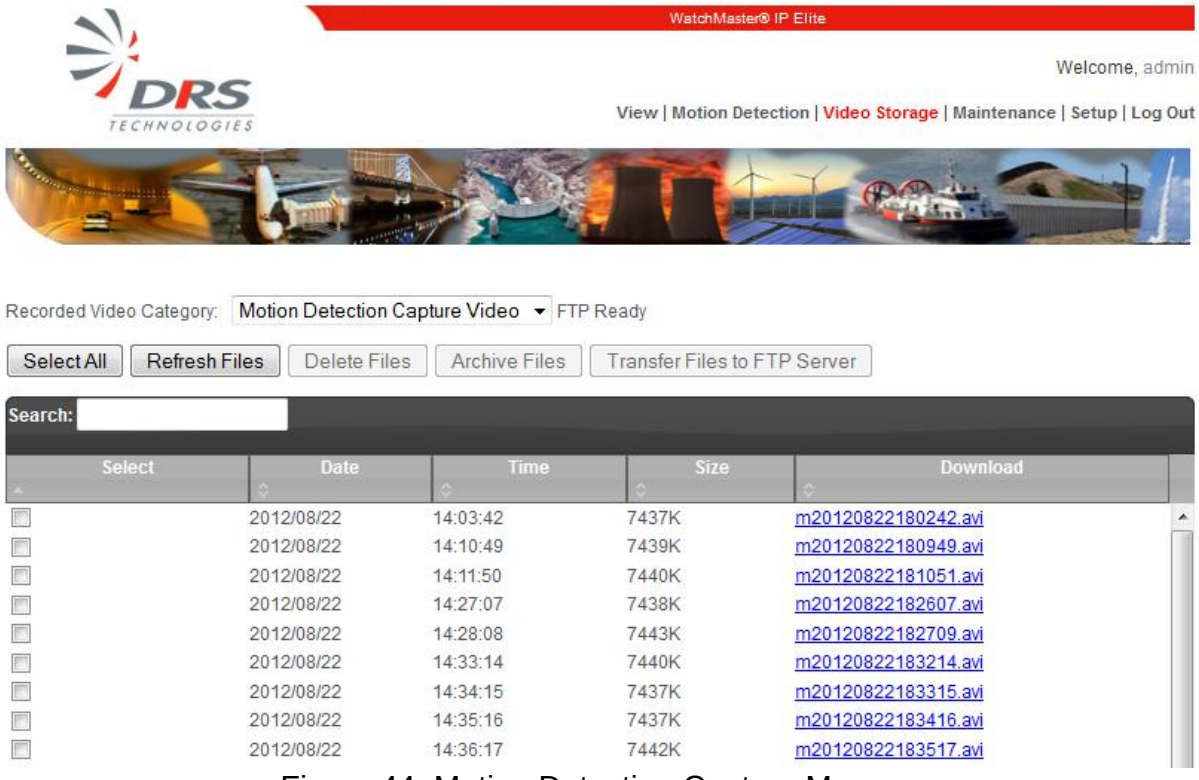


Figure 44: Motion Detection Capture Menu

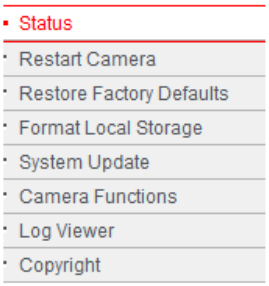
6.4 MAINTENANCE

The IP Camera is shipped with default software from the factory. DRS may make available software updates and enhancements to the IP camera from time to time. Table 15 and Figure 45 through Figure 49 provide details on the maintenance menu.

Table 15: Maintenance

Maintenance	Description
Status	Provides information about the system and key system components (Sensor and Internal Memory). System temperature, system software version and build time, system start time, system serial number and system state can be seen on the screen. Status also includes storage capacity and available memory. Additionally details about the sensor used in the system are also provided. This includes sensor name, sensor software, sensor firmware sensor serial number, and camera FOV.
Restart Camera	Press this to restart the camera. Again, press the Reboot Camera button in the next screen. Confirm the action to restart in the popup window. The Camera will restart and may take up to 90 seconds. Make sure to refresh the screen or press the F5 key for the login prompt.
Restore Factory Defaults	Select this option to restore the camera to factory default settings. Press again on Restore Factory Defaults and confirm the action when prompted.
Format Local Storage	Internal Memory in the camera can be formatted with this selection. Press on the Format SD Card and confirm the selection. All the files will be lost when the format action is executed. Make sure to move the requisite files from local storage to the FTP server.
System Update-Firmware Update	Obtain the latest IP camera firmware file from the DRS representative or download the latest IP camera firmware file from drsinfrared.com. Use the browse button to locate the IP camera firmware file on your PC/Server. Press on the Upload Firmware button and confirm the selection in the popup window. Typical firmware update time is 20 minutes but may take up to1 hour depending on the network conditions.
System Update-Camera Configuration	All saved configuration parameters of the IP Camera can be saved to a configuration file by pressing the Get Config File button. A popup window with file name sysenv.cfg can be saved to the PC/Server. This sysenv.cfg file can be uploaded to other IP cameras in the network. First, Login to the other IP camera(s), go to Firmware update and Camera Configuration. Use the browse button to locate the IP camera configuration file on your PC/Server. Then, press on Upload Config File button.
Camera Functions-Heater Control	Press this button to enable or disable the heater. Once the heater is enabled, the button will turn Red and the heater will run as necessary based on ambient temperature conditions.

Maintenance	Description
Camera Functions-Auto Cal Interval	The camera automatically calibrates itself and performs non uniformity correction (NUC) at frequent intervals. This calibration interval can be set using the Set Auto Cal Interval button. Choose the interval by using the slider. The NUC interval range is 5-60 minutes. Press the Set Auto Cal Interval to set the selected interval. A popup window will confirm the setting.
Constant Recording Control	Press on the Disable Constant Recording Button to enable or disable constant recording of the video. This button turns to Red when Constant Recording is active.
Log Viewer	The IP camera provides logs for viewing and troubleshooting purposes. Click on Log Viewer to see the list of logs. The logs may include camera start time, camera logout time, camera recording start time, and motion event time.
Copyright	Click on Copyright to see the DRS Technologies Copyright statement.



System Status

Parameter	Value
System Temperature	37°C / 99°F
System SW Version	1.3.3869 (00100003)
System SW Build Time	Dec 19 2012 13:15:49
System Start Time	Thu Dec 20 16:56:51 2012
System HW Type	0
Video Storage Capacity	1931 MB
Video Storage Free Space	219 MB
Sensor Name	System: UC320-17
Sensor SW Version	Rel: X1.P1.01.12
Sensor Firmware Version	RTL Rel: 01.00.0075
Sensor Serial Number	TD000067 , 8732
System Serial Number	00:50:C2:DD:E8:2D
System State	00001001
Camera FOV	40

Figure 45: Maintenance System Status

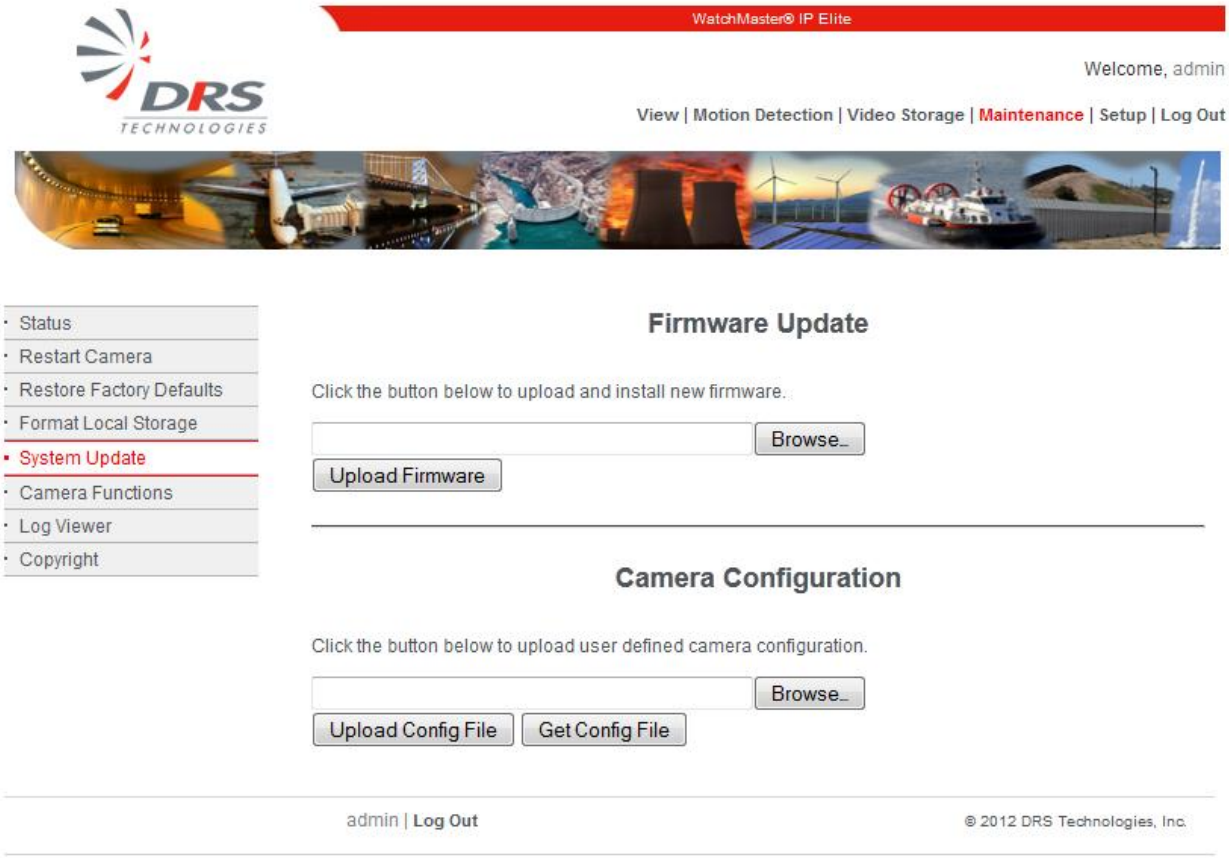


Figure 46: Firmware Update and Camera Configuration

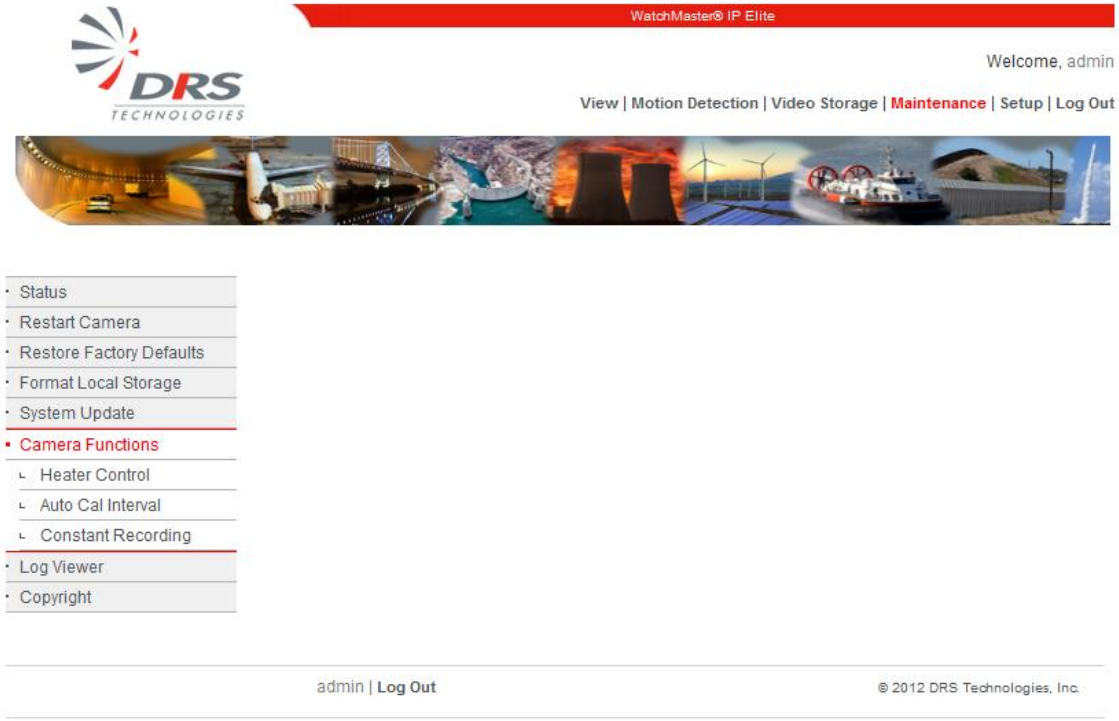


Figure 47: Camera Maintenance Functions

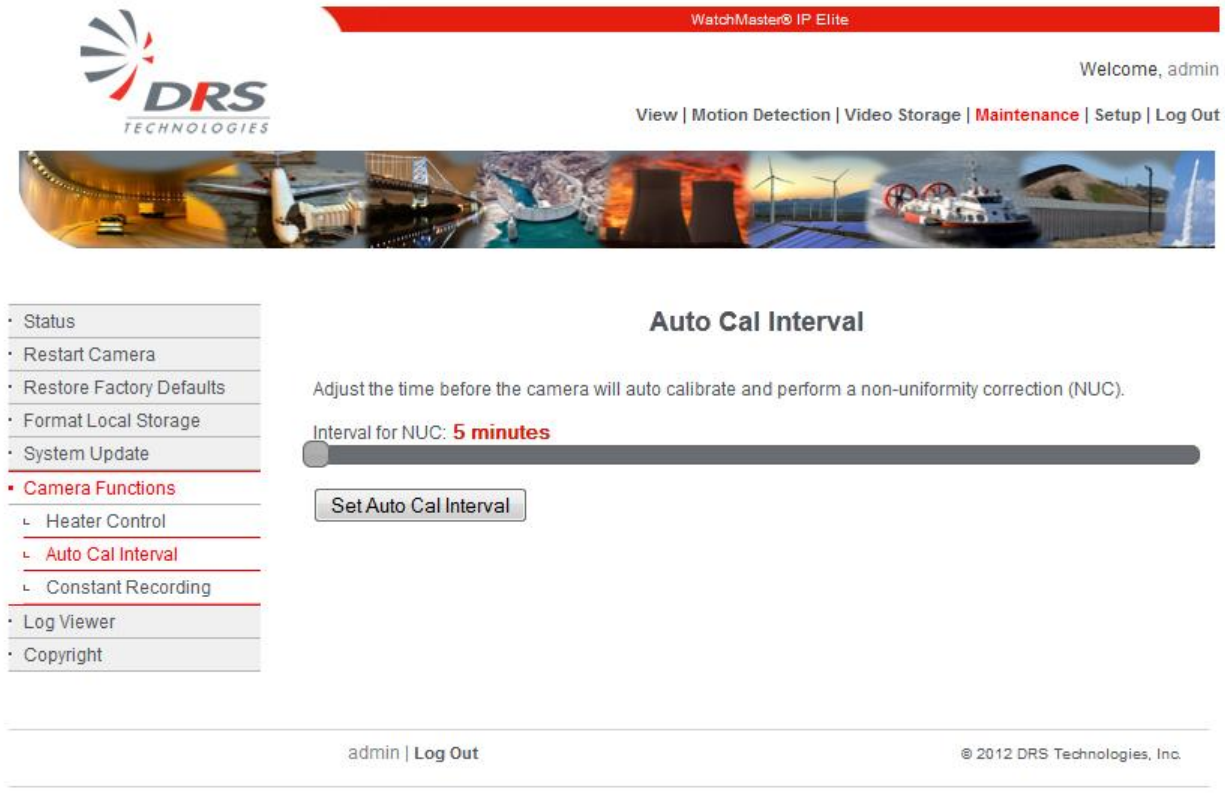


Figure 48: Auto Calibration Control

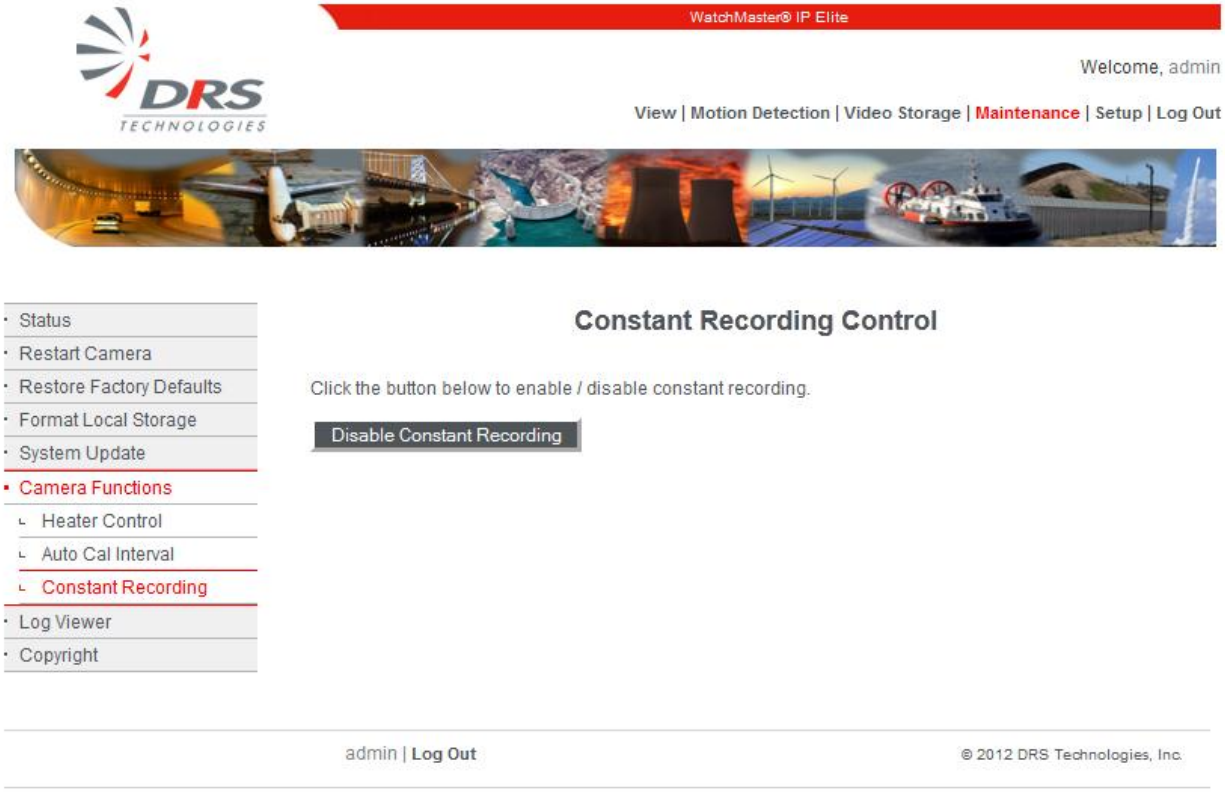


Figure 49: Constant Recording Control

6.5 LOG OUT

To log out of the IP Camera, click on the Log Out link in the main menu or click on the Log Out link at the bottom of the screen. All of the five main menus also have the Log Out link at the bottom of the screen which can be used to log out of the camera.

7 INTEROPERABILITY

The WatchMaster® IP Elite 3000 Camera is an IP networked solution and is conformant to the Open Network Video Interface Forum (ONVIF) standard in a networked environment and can easily interwork with 3rd party Video Management System (VMS). The Open Network Interface Forum http://www.onvif.org is an open global industry forum committed to the goal of standardizing the interface of physical IP-based security products in order to promote interoperability between various security devices and software. The ONVIF forum is supported by industry leaders and is set out to become a mandatory feature of all IP-based security products. DRS Technologies is a member of the ONVIF forum and the DRS WatchMaster® IP Elite 3000 conforms to the ONVIF standard. ONVIF commands are exposed through the Simple Object Access Protocol (SOAP) interface which transports XML over the HTTP protocol in order to send standardized XML commands to the IP camera.

Please note "ONVIF" and the ONVIF logo are trademarks of ONVIF Inc.

In addition, DRS has implemented many commands and controls to manage the camera through the DRS Web Interface using HTTP POST methods. These commands are available for 3rd party Application providers to implement every single feature of the WatchMaster® IP Elite 3000 Camera.

DRS provides an Interface Control Documents (ICD) to make it easier for 3rd party vendors to implement ONVIF commands as well as the DRS Web interface commands. Please contact DRS or its authorized distributor to obtain a copy of these documents.

8 MAINTENANCE AND TROUBLESHOOTING

8.1 MAINTENANCE

The IP Camera requires very little physical maintenance. The camera has a built-in heater which provides anti icing and defogging for the camera lens. The camera lens can be cleaned as necessary.

8.2 RECOMMENDED CARE

It is recommended that the user inspect the camera lens every 30 days for cleanliness and to perform cleaning as required.

CAUTION

Smudges on the camera lens windows will impair images. Avoid touching the camera lens with bare hands.

1. Remove loose soil from lens surface with a clean, dry, soft brush Use lens cleaning paper for cleaning the camera lens
2. Moisten a folded lens tissue; using light pressure in a circular motion starting in the center, wipe the lens surface to remove oil, smears, streaks, or haze.
3. Dry the lens with a second lens tissue using the same circular wiping motion.
4. Allow to dry.
5. If haze or smears are present, repeat procedure until surface is clean.

8.3 TROUBLESHOOTING

This section highlights some common issues that may be encountered while using the DRS IP WatchMaster® Elite 3000 Camera, possible causes, and recommended actions.

Table 16: Troubleshooting Symptoms, Causes and Recommendation

Symptom	Possible Cause	Recommendation
Issue setting the IP address of the camera or discovering the camera	DHCP address may not be assigned to the camera or may have been changed	Check the network DHCP server IP address assignments and lease. Alternatively, move the camera to an isolated network and make sure camera gets DHCP address and is accessible. Move the camera back to the network and test it. If you still have issues, reset the camera physically by pressing the reset button on the rear of the camera and test the camera again. This will ensure the camera releases the IP address.
	IP address may be used by another device	Check the DHCP settings. Obtain a new IP address using DHCP. Ensure this is a unique IP address
	The camera may be located on a different subnet	Contact your IT administrator to get the IP address of the camera
	POE Switch port powering the camera may have gone bad or the power provided by the POE switch may not be adequate	Check the POE switch/port and ensure the port is working ok. Ensure POW switch ports provide the necessary power (camera requires a minimum of 13 watts of power)
Cannot login to the IP Camera	Login credentials may be incorrect	Check the login user id of the user or admin
		Check the login password of the user or admin
No video image displayed on the main menu or the view menu of the DRS Web Interface	VLC media player may not have been installed	Install the VLC media player directly from the IP Camera. Camera will prompt for the VLC install. Alternatively, download from the VLC website http://www.videolan.org/vlc/
	VLC media player may not be working	Reset IE or Firefox browser security settings to its default value. Go to tools->options
	Screen may not have been refreshed, especially after Firmware upgrade of the camera	Press the CRTL + F5 keys on your keyboard to refresh the screen and clear your browser cache

9 WARRANTY

DRS warrants the WatchMaster® IP Elite 3000 Camera will perform substantially as described in the applicable User Manual during normal use for a period of twenty-four (24) months from the original shipment date. This limited warranty is void if failure of the DRS WatchMaster® IP Elite Camera to conform to the warranty has resulted from improper installation, testing, misuse, neglect, accident, fire or other hazard, or any breach of this Agreement.

10 SUPPORT

For any support questions on WatchMaster® IP Elite 3000 Camera, DRS may be contacted through the DRS web site or through the DRS phone number listed below.

http://www.drsinfrared.com
877.377.4783